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ELEMENTS

OF

LOGIC.

COMPRISING

THE SUBSTANCE OF THE ARTICLE

IN THE

ENCYCLOPÆDIA METROPOLITANA:

WITH

ADDITIONS, &c.

By RICHARD WHATELY, D.D.

PRINCIPAL OF ST. ALBANS' HALL, AND LATE FELLOW
OF ORIEL COLLEGE, OXFORD.

SECOND EDITION.

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TO

THE VERY REVEREND

EDWARD COPLESTON, D.D.

PROVOST OF ORIEL COLLEGE, OXFORD;
DEAN OF CHESTER, &c. &c.

MY DEAR MR. PROVOST,

To enumerate the advantages I have derived from your instructions, both in regular lectures and in private conversation, would be needless to those acquainted with the parties, and to the Public, uninteresting. My object at present is simply to acknowledge how greatly I am indebted to you in respect of the present work; not merely as having originally imparted to me the principles of the Science, but also as having contributed remarks, explanations, and illustrations, relative to the most important points, to so great an amount that I can hardly consider myself as more than half the Author of such portions of the treatise as are not borrowed from former publications. I could have wished, indeed, to acknowledge this more explicitly, by marking with some note of distinction those parts which are least my own; but I found it could not be done. In most instances there is something belonging to each of us; and even in those parts where your share is the largest, it would not be fair that you should be made responsible for anything that is not entirely your own. Nor is it possible, in the case of a Science, to remember distinctly how far one has been in each instance indebted to the suggestions of another. Information, as to matters of fact, may easily be referred in the mind to the person from whom we have derived it: but scientific truths, when thoroughly embraced, become much more a part of the mind, as it were; since they rest, not on the authority of the instructor, but on reasoning from data which we ourselves furnish: they are scions engrafted on the stems previously rooted in our own soil; and we are apt to confound them with its indigenous productions.

You yourself also, I have reason to believe, have forgotten the greater part of the assistance you have afforded in the course of conversations on the subject; as I have found, more than once, that ideas which I distinctly remembered to have received from you, have not been recognised by you when read or repeated. As far, however, as I can recollect, though there is no part of the following pages in which I have not, more or less, received valuable suggestions from you, I believe you have contributed less to the Analytical Outline, and to the Treatise on Fallacies, and more to the subjoined Dissertation, than to the rest of the Work.

I take this opportunity of publicly declaring, that as, on the one hand, you are not responsible for anything contained in this Work, so, on the other hand, should you ever favour the world with a publication of your own on the subject, the coincidence which will doubtless be found in it with many things here brought forward as my own, is not to be regarded as any indication of plagiarism, at least on your side.

Believe me to be,
Dear Mr. Provost,
Your obliged and affectionate
Pupil and Friend,
RICHARD WHATELY.

PREFACE.

THE following Treatise contains the substance of the Article "LOGIC" in the *Encyclopædia Metropolitana*. It was suggested to me that a separate publication of it might prove acceptable, not only to some who are not subscribers to that Treatise, but also to several who are, but who, for convenience of reference, would prefer a more portable volume.

I have accordingly revised it, and made such additions, chiefly in the form of Notes, as I thought likely to increase its utility.

I have taken without scruple whatever appeared most valuable, from the works of former writers; especially the concise, but in general accurate, treatise of Aldrich: but while I acknowledge my obligations to my predecessors, of whose labours I have largely availed myself, I do not profess to be altogether satisfied with any of the treatises that have yet appeared; nor have I accordingly judged it any unreasonable presumption to point out what seem to me the errors they contain. Indeed, whatever deference an Author may profess for the authority of those who have preceded him, the very circumstance of his publishing a work on the same subject, proves that he thinks theirs open to improvement. In censuring, however, as I have had occasion to do, several of the doctrines and explanations of logical writers, and of Aldrich in particular, I wish it to be understood that this is not from my having formed a low estimate of the merits of the Compendium drawn up by the Author just mentioned, but, on the contrary, from its deserved popularity,—from the impossibility of noticing particularly all the points in which we agree, —and from the consideration that errors are the more carefully to be pointed out in proportion to the authority by which they are sanctioned.

I have also to acknowledge assistance received from several friends who have at various times suggested remarks and alterations. But I cannot avoid particularizing the Rev. J. Newman, Fellow of Oriel College, who actually composed a considerable portion of the work as it now stands, from manuscripts not designed for publication, and who is the original author of several pages. Some valuable illustrations of the importance of attending to the ambiguity of the terms used in Political-Economy have been furnished by the kindness of my friend and former pupil, Mr. Senior of Magdalen College and of Lincoln's Inn, now Professor of Political-Economy at Oxford; they are printed in the Appendix. But, the friend to whom it is inscribed has contributed far more, and that in the most important parts, than all others together; so much, indeed, that, though there is in the treatise nothing of his which has not undergone such expansion or modification as leaves me solely responsible for the whole, there is not a little of which I cannot fairly claim to be the Author.

On the utility of Logic many writers have said much in which I cannot coincide, and which has tended to bring the study into unmerited disrepute. By representing Logic as furnishing the sole instrument for the discovery of truth in all subjects, and as teaching the use of the intellectual faculties in general, they raised expectations which could not be realized, and which naturally led to a re-action: the whole system, whose unfounded pretensions had been thus blazoned forth, has come to be commonly regarded as utterly futile and empty: like several of our most valuable medicines, which, when first introduced, were proclaimed, each, as a panacea, infallible in the most opposite disorders; and which consequently, in many instances, fell for a time into total disuse; though, after a long interval, they were established in their just estimation, and employed conformably to their real properties.

To explain fully the utility of Logic is what can be done only in the course of an explanation of the system itself. One preliminary observation only (for the original suggestion of which I am indebted to the same friend to whom this work is inscribed) it may be worth while to offer in this place. If it were inquired what is to be regarded as the most appropriate intellectual occupation of MAN, *as* man, what would be the answer? The Statesman is engaged with political affairs; the Soldier, with military; the Mathematician, with the properties of numbers and magnitudes; the Merchant, with commercial concerns, &c.; but in what are *all* and each of these employed? Evidently in *Reasoning*.

They are all occupied in deducing, well or ill, Conclusions from Premises; each, concerning the Subject of his own particular business. If, therefore, it be found that the process going on daily in each of so many different minds is, in any respect, the *same*, and if the principles on which it is conducted can be reduced to a regular system, and if rules can be deduced from that system for the better conducting of the process, then, it can hardly be denied that such a system and such rules must be especially worthy the attention, not of the members of this or that profession merely, but of every one who is desirous of possessing a cultivated mind. To understand the theory of that which is the appropriate intellectual occupation of man in general, and to learn to do that *well*, which every one will and must do, whether well or ill, may surely be considered as an essential part of a liberal education.

Even supposing that no practical improvement in argumentation resulted from the study of Logic, it would not by any means follow that it is unworthy of attention. The pursuit of knowledge on curious and interesting subjects, for its own sake, is usually reckoned no misemployment of time, and is considered as, incidentally, if not directly, useful to the individual, by the exercise thus afforded to the mental faculties: all who study Mathematics are not training themselves to become Surveyors or Mechanics: some knowledge of Anatomy and Chemistry is even expected in a man liberally educated, though without any view to his practising Surgery or Medicine. The investigation of a process which is peculiarly and universally the occupation of man, considered as man, can hardly be reckoned a less philosophical pursuit than those just instanced.

It has usually been assumed, however, in the case of the present subject, that a theory which does not tend to the improvement of practice is utterly unworthy of regard; and then it is contended that Logic has no such tendency, on the plea that men may and do reason correctly without it: an objection which would equally apply in the case of Grammar, Music, Chemistry, Mechanics, *&c.*, in all of which systems the practice must have existed previously to the theory. But many who allow the use of systematic principles in other things are accustomed to cry up Common-Sense as the sufficient and only safe guide in Reasoning. Now by Common-Sense is meant, I apprehend, (when the term is used with any distinct meaning,) an exercise of the judgment unaided by any Art or system of rules; such as we must necessarily employ in numberless cases of daily occurrence; in which, having no established principles to guide us,—no line of procedure, as it were, distinctly chalked out,—we must needs act on the best extemporaneous conjectures we can form. He who is eminently skilful in doing this, is said to possess a superior degree of Common-Sense. But that Common-sense is only our *second-best* guide—that the rules of Art, if judiciously framed, are always desirable when they can be had, is an assertion, for the truth of which I may appeal to the testimony of Mankind in general; which is so much the more valuable, inasmuch as it may be accounted the testimony of adversaries. For the generality have a strong predilection in favour of Common-Sense, except in those points in which they, respectively, possess the knowledge of a system of rules; but in these points they deride any one who trusts to unaided Common-Sense. A sailor, *e. g.*, will, perhaps, despise the pretensions of medical men, and prefer treating a disease by Common-Sense: but he would ridicule the proposal of navigating a ship by Common-Sense, without regard to the maxims of nautical art. A physician, again, will perhaps contemn Systems of Political-Economy, of Logic, or Metaphysics, and insist on the superior wisdom of trusting to Common-Sense in such matters; but he would never approve of trusting to Common-Sense in the treatment of diseases. Neither, again, would the architect recommend a reliance on Common-Sense alone in building, nor the musician in music, to the neglect of those systems of rules, which, in their respective arts, have been deduced from scientific reasoning aided by experience. And the Induction might be extended to every department of practice. Since, therefore, each gives the preference to unassisted Common-Sense only in those cases where he himself has nothing else to trust to, and invariably resorts to the rules of art, wherever he possesses the knowledge of them, it is plain that mankind universally bear their testimony, though unconsciously and often unwillingly, to the preferableness of systematic knowledge to conjectural judgments.

It was doubtless from a strong and deliberate conviction of the advantages, direct and indirect, accruing from an acquaintance with Logic, that the University of Oxford, when re-modelling their system, not only retained that branch of study, regardless of the clamours of many of the half-learned, but even assigned a prominent place to it, by making it an indispensable part of the examination for the first degree. This last circumstance, however, I am convinced has, in a great degree, produced an effect opposite to what was designed: it has contributed to lower instead of exalting the estimation of the study, and to withhold from it the earnest attention of many who might have applied to it with profit. I am not so weak as to imagine that any System can ensure great proficiency in any pursuit whatever, either in all students, or in a very large proportion of them: "we sow many seeds to obtain a few flowers;" but it might have been expected (and doubtless was expected) that a majority at least of successful candidates would derive some benefit worth mentioning from their logical pursuits; and that a considerable proportion of the distinguished candidates would prove respectable, if not eminent logicians. Such expectations I do not censure as unreasonable, or such as I might not have formed myself, had I been called upon to judge at that period when our experience was all to come. But that experience has shown that those expectations have been very inadequately realized. The truth is, that a very small proportion even of distinguished students ever become good logicians; and that by far the greater part pass through the University without knowing any thing at all of it; I do not mean that they have not learned by rote a string of technical terms; but that they understand absolutely nothing whatever of the principles of the Science. I am aware that some injudicious friends of Oxford will censure the frankness of this avowal: I have only to reply that such is the truth; and that I think too well of, and know far too well, the University in which I have been employed in various academical occupations above eighteen years, to apprehend danger to her reputation from declaring the exact truth. With all its defects, and no human institution is perfect, the University would stand, I am convinced, higher in public estimation than it does, were the whole truth, and nothing but the truth, in all points respecting it, more fully known. But the scanty and partial success of the measures employed to promote logical studies is the consequence, I apprehend, of the *universality* of the requisition. That which *must* be done by *every one* will, of course, often be done very indifferently; and when the belief is once fully established, which it certainly is, that anything which is indispensable to a testimonial has little or nothing to do with the attainment of honours, the lowest standard soon becomes the established one in the minds of the greater part; and provided that standard be once reached, so as to secure the candidate from rejection, a greater or less proficiency in any such branch of study is regarded as a matter of indifference, as far as any views of academical distinction are concerned. Divinity is one of these branches; and to this also most of what has been said concerning Logic might be considered as equally applicable; but, in fact, there are several important differences between the two cases. In the first place, most of the students who are designed for the Church, and many who are not, have a value for theological knowledge independently of the requisition of the schools; and on that ground do not confine their views to the lowest admissible degree of proficiency: whereas this can be said of very few in the case of Logic. But a consideration, which is still more to the present purpose, is, that Theology, not being a Science, admits of infinite *degrees* of proficiency, from that which is within the reach of a child, up to the highest that is attainable by the most exalted genius; every one of which degrees is inestimably valuable as far as it goes: if any one understands tolerably the Church-catechism, or even the half of it, he knows *something* of divinity; and that something is incalculably preferable to nothing. But it is not so with a Science: one who does not understand the principles of Euclid's demonstrations, whatever number of questions and answers he may have learnt by rote, knows absolutely *nothing* of geometry: unless he attain this point, all his labour is utterly lost; worse than lost, perhaps, if he is led to believe that he has learnt something of a Science, when, in truth, he has not. And the same is the case with Logic, or any other Science. It does not admit of such various degrees, as a knowledge of religion. Of course I am far from supposing, that all who understand anything at all of Logic stand on the same level; but I mean, what is surely undeniable, that one who does not embrace the fundamental principles of that or any other Science, whatever he may have taken on authority, and learned by rote, knows, properly speaking, nothing of that Science. And such, I have no hesitation in saying, is the case with a considerable proportion even of those candidates who obtain testimonials, including many who gain distinction. There are some persons, (probably not above one in ten, of such as have in other respects tolerable abilities,) who are physically incapable of the degree of steady abstraction requisite for really embracing the principles of Logic or of any other Science, whatever pains may be taken by themselves or their teachers. But there is a much greater number to whom this is a great *difficulty*, though not an impossibility; and who having, of course, a strong disinclination to such a study, look naturally to the very lowest admissible standard. And the example of such examinations in Logic as must be expected in the case of men of these descriptions, tends, in combination with popular prejudice, to degrade the study altogether in the minds of the greater part. It was from these considerations, perhaps, that it was proposed, not long since, to leave the study of Logic altogether to the option of the candidates; but the suggestion was rejected; the majority appearing to think (in which opinion I most fully coincide) that, so strongly as the tide of popular opinion sets against the study, the result would have been, within a few years, an almost universal neglect of that Science. Matters were left accordingly, in respect of this point, on their former footing; which I am convinced is far preferable to the proposed alteration. But there is a middle course between these two, which I am persuaded would be infinitely preferable to either; a persuasion which I have long entertained, and which is confirmed by every day's observations and reflections, of which few, I believe, have bestowed more on this subject. Let the study of Logic be made *optional to those who are merely candidates for a degree*, but indispensable to the *attainment of academical honours*, and I am ready to pledge myself that it would speedily begin, and progressively continue, to rise in estimation and to be studied with real profit. The examination might then, without any hardship, be made a strict one; since no one could complain that a certain moderate degree of scientific ability, and a resolution to apply to a certain prescribed study, should be the conditions of obtaining *distinction*. The far greater part would still study Logic, since there would be (as now) but few who would be willing to exclude themselves from the possibility of obtaining distinction; but it would be studied with a very different mind, when ennobled, as it were, by being made part of the passport to University-honours, and when a proficiency in it came to be regarded generally as an honourable distinction. And in proportion as the number increased of those who really understood the Science, the number would increase of such as would value it on higher and better grounds. It would in time come to be better known and better appreciated by all the well-informed part of society. These effects could not indeed be expected to show themselves *fully* till after a considerable lapse of time; but that the change would *begin* to appear, and that very decidedly, within three or four years, I am perfectly confident. My earnest wishes for so important, yet so easy and simple an alteration are not unaccompanied with sanguine hopes that, before long, it may take place; from the candid and judicious readiness which has been shown to introduce, from time to time, such improvements as careful inquiry and sound reasoning suggest.

I am sensible that many may object, that this is not the proper place for such remarks as the foregoing: what has the public at large, they may say, to do with the statutes of the University of Oxford? To this it might fairly be replied, that not only all who think of sending their sons or other near relatives to Oxford, but all likewise who are placed under the ministry of such as have been educated there, are indirectly concerned, to a certain degree, in the system there pursued. But the consideration which had the chief share in inducing me to say what I have, is that the vindication of Logic from the prevailing disregard and contempt under which it labours, would have been altogether incomplete without it. For let it be remembered that the Science is judged of by the Public in this country, in a very great degree, from the specimens displayed and the reports made by those whom Oxford sends forth; every one, on looking into the University Calendar or Statute Book, feels himself justified in assuming, that whoever has graduated at Oxford must be a Logician: not, indeed, necessarily a first-rate Logician, but such as to satisfy the public examiners that he has a competent knowledge of the Science. Now, if a very large proportion of these persons neither are, nor think themselves at all benefited by their (so called) logical education, and if many of them treat the study with contempt, and represent it as a mere tissue of obsolete and empty jargon, which it is a mere waste of time to attend to, let any one judge what conclusions respecting the utility of the study, and the wisdom of the University in upholding it, are likely to be the result.

That prejudices so deeply-rooted as those I have alluded to, and supported by the authority of such eminent names, especially that of Locke, and (as is commonly, though not very correctly supposed) Bacon, should be overthrown at once by the present treatise, I am not so sanguine as to expect; but if I have been successful in refuting some of the most popular objections, and explaining some principles which are in general ill-understood, it may be hoped that in time just notions on the subject may gain ground: especially if, as I have some reason to hope, a more able advocate of the same cause should be induced to step forward.

It may be permitted me to mention, that as I have addressed myself to various classes of students, from the most uninstructed tyro, to the furthest-advanced Logician, and have touched accordingly both on the most elementary principles, and on some of the most remote deductions from them, it must be expected that readers of each class will find some parts not well-calculated for them. Some explanations will appear to the one too simple and puerile; and for another class, some of the disquisitions will be at first too abstruse. If to each description some portions are found interesting, it is as much as I can expect.

With regard to the style, I have considered *perspicuity* not only, as it always must be, the first point, but as one of such paramount importance in such a subject, as to justify the neglect of all others. Prolixity of explanation,—homeliness in illustration,—and baldness of expression, I have regarded as blemishes not worth thinking of, when anything was to be gained in respect of clearness.

Of the correctness of the fundamental doctrines maintained in the work, I may be allowed to feel some confidence; not so much from the length of time (about fourteen years) that I have been more or less occupied with it, enjoying at the same time the advantage of frequent suggestions and corrections from several judicious friends, as from the nature of the subject. In works of taste, an author cannot be sure that the judgment of the public will coincide with his own; and if he fail to give pleasure, he fails of his sole, or most appropriate object. But in the case of truths which admit of Scientific demonstration, it is possible to arrive by reasoning at as full an assurance of the justness of the conclusions established, as the imperfection of the human faculties will admit; and experience, accompanied with attentive observation, and with repeated trials of various methods, may enable one long accustomed to tuition to ascertain with considerable certainty what explanations are the best comprehended. Many parts of the detail, however, may probably be open to objections; but if no errors are discovered, which materially affect the substantial utility of the work, but only such as detract from the credit of the author, the object will have been attained which I *ought* to have had principally in view.

No credit, I am aware, is given to an author's own disclaimer of personal motives, and profession of exclusive regard for public utility; since even sincerity cannot, on this point, secure him from deceiving himself; but it may be allowable to observe that one whose object is the increase of his reputation as a writer, can hardly choose a subject less suitable for his purpose than the present. It is far from a popular one, and not likely to become so, in any considerable degree, at least during the lifetime of a writer of the present day. Ignorance, fortified by prejudice, opposes its reception, even in the minds of those who are considered as both candid and well-informed. Besides that a great majority of readers not only know not what Logic is, but have no curiosity to learn: the greater part of those who imagine that they do know, are wedded to erroneous notions of it. The multitude never think of paying any attention to the correctness of their reasoning; and those who do, are usually too confident that they are already completely successful in this point, to endure the thought of seeking instruction upon it.

And as, on the one hand, a large class of modern philosophers may be expected to raise a clamour against "obsolete prejudices;" "bigoted devotion to the decrees of Aristotle;" "confining the human mind in the trammels of the Schoolmen," &c. so, on the other hand, all such as really are thus bigoted to every-thing that has been long established, for that reason alone, will be ready to exclaim against the presumption of an author, who presumes to depart in several points from the track of his predecessors.

There is another circumstance, also, which tends materially to diminish the credit of a writer on this and some other kindred subjects. We can make no discoveries *of striking novelties:* the senses of our readers are not struck, as with the return of a Comet which had been foretold, or the extinction of a taper in carbonic-acid gas: the materials we work upon are common and familiar to all, and, therefore, supposed to be well understood by all: and not only is any one's deficiency in the use of these materials, such as is generally unfelt by himself, but when it is removed by satisfactory explanations—when the notions, which had been perplexed and entangled, are cleared up by the introduction of a few simple and apparently obvious principles, he will generally forget that any explanation at all was needed, and consider all that has been said as mere truisms, which even a child could supply to himself. Such is the nature of the fundamental principles of a Science—they are so fully *implied* in the most evident and well-known truths, that the moment they are fully embraced, it becomes a difficulty to conceive that we could ever have been not aware of them. And hence, the more simple, clear, and obvious any principle is rendered, the more likely is its exposition to elicit those common remarks, "of course! of course!" "no one could ever doubt that;" "this is all very true, but there is nothing *new* brought to light;—nothing that was not familiar to every one;" "there needs no ghost to tell us that." I am convinced, that a verbose, mystical, and partially obscure way of writing on such a subject is the most likely to catch the attention of the multitude. The generality verify the observation of Tacitus, "omne ignotum pro mirifico:" and when anything is made very plain to them, are apt to fancy that they knew it already; so that the explanations of scientific truths are likely, for a considerable time at least, to be, by most men, underrated the more, the more perfectly they accomplish their object.

A very slow progress, therefore, towards popularity is the utmost that can be expected for such a treatise as I have endeavoured to make the present. I have felt myself bound, however, not only as a member of Society, but more especially as a minister of the Gospel, to use my endeavours towards promoting an object which to me appears highly important, and, what is much more, whose importance is appreciated by very few besides. The cause of Truth universally, and not least, of religious Truth, is benefited by everything that tends to promote sound reasoning and facilitate the detection of fallacy. The adversaries of our Faith would, I am convinced, have been on many occasions more satisfactorily answered, and would have had fewer openings for cavil, had a thorough acquaintance with Logic been a more common qualification than it is. In lending my endeavours, therefore, whether with greater or less success, towards this object, I trust that I am neither uselessly nor unsuitably employed.

Those who are engaged in, or designed for the Sacred Ministry, and all others who are sensible that the cause of true Religion is not a concern of the Ministry alone, should remember that this is no time to forego any of the advantages which that cause may derive from an active and judicious cultivation of the faculties. Among the enemies of Christianity in the present day are included, if I mistake not, a very different description of persons from those who were chiefly to be met with a century, or even half a century ago: what were called "men of wit and pleasure about Town;"—ignorant, shallow, flippant declaimers, or dull and powerless pretenders to Philosophy. Among the enemies of the Gospel now, are to be found men not only of learning and of ingenuity, but of *cultivated argumentative powers*, and not unversed in the principles of Logic. If the advocates of our Religion think proper to disregard this help, they will find, on careful inquiry, that *their opponents do not.* And let them not trust too carelessly to the strength of their cause: Truth will, indeed, prevail where all other points are nearly equal; but it may suffer a temporary discomfiture, if hasty assumptions, unsound arguments, and vague and empty declamation, occupy the place of a train of close, accurate, and luminous reasoning.

It is not, however, solely or chiefly for polemical purposes that the cultivation of the reasoning faculty is desirable; in persuading and investigating, in learning or teaching,—in all the multitude of cases in which it is our object to arrive at just conclusions, or to lead others to them, it is most important. A knowledge of logical rules will not indeed supply the want of other knowledge; nor was it ever proposed, by any one who really understood this Science, to substitute it for any other; but it is no less true that no other can be substituted for this: that it is valuable in every branch of study; and that it enables us to use the knowledge we possess to the greatest advantage. It is to be hoped, therefore, that those academical bodies, who have been wise enough to retain this Science, will, instead of being persuaded to abandon it, give their attention rather to its improvement and more effectual cultivation.

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ELEMENTS OF LOGIC.

INTRODUCTION.

Definition of Logic.

LOGIC, in the most extensive sense which the name can with propriety be made to bear, may be considered as the Science, and also as the Art, of Reasoning. It investigates the principles on which argumentation is conducted, and furnishes rules to secure the mind from error in its deductions. Its most appropriate office, however, is that of instituting an analysis of the process of the mind in Reasoning; and in this point of view it is, as has been stated, strictly a *Science:* while, considered in reference to the practical rules above mentioned, it may be called the *Art* of Reasoning. This distinction, as will hereafter appear, has been overlooked, or not clearly pointed out by most writers on the subject; Logic having been in general regarded as merely an art; and its claim to hold a place among the sciences having been expressly denied.

Prevailing Mistakes respecting Logic.

Considering how early Logic attracted the attention of philosophers, it may appear surprising that so little progress should have been made, as is confessedly the case, in developing its principles, and perfecting the detail of the system; and this circumstance has been brought forward as a proof of the barrenness and futility of the study. But a similar argument might have been urged with no less plausibility, at a period not very remote, against the study of Natural Philosophy; and, very recently, against that of Chemistry. No science can be expected to make any considerable progress, which is not cultivated on right principles. Whatever may be the inherent vigour of the plant, it will neither be flourishing nor fruitful till it meet with a suitable soil and culture: and in no case is the remark more applicable than in the present; the greatest mistakes having always prevailed respecting the nature of Logic, and its province having in consequence been extended by many writers to subjects with which it has no proper connexion. Indeed, with the exception of Aristotle, (who is himself not entirely exempt from the errors in question,) hardly a writer on Logic can be mentioned who has clearly perceived, and steadily kept in view throughout, its real nature and object. Before his time, no distinction was drawn between the science of which we are speaking, and that which is now usually called Metaphysics; a circumstance which alone shows how small was the progress made in earlier times. Indeed, those who first turned their attention to the subject, hardly thought of inquiring into the process of Reasoning itself, but confined themselves almost entirely to certain preliminary points, the discussion of which is (if logically considered) subordinate to that of the main inquiry.

Early writers on Logic.

Zeno the Eleatic, whom most accounts represent as the earliest systematic writer on the subject of Logic, or, as it was then called, Dialectics, divided his work into three parts; the first of which (upon consequences) is censured by Socrates [Plato, *Parmen.*] for obscurity and confusion. In his second part, however, he furnished that interrogatory method of disputation [ἐρώτησις] which Socrates adopted, and which has since borne his name. The third part of his work was devoted to what may not improperly be termed the art of wrangling [ἐριστικὴ], which supplied the disputant with a collection of sophistical questions, so contrived, that the concession of some point which seemed unavoidable, immediately involved some glaring absurdity. This, if it is to be esteemed as at all falling within the province of Logic, is certainly not to be regarded (as some have ignorantly or heedlessly represented it) as its principal or proper business. The Greek philosophers generally have unfortunately devoted too much attention to it; but we must beware of falling into the vulgar error of supposing the ancients to have regarded as a serious and intrinsically important study, that which in fact they considered as an ingenious recreation. The disputants diverted themselves in their leisure hours by making trial of their own and their adversary's acuteness, in the endeavour mutually to perplex each other with subtle fallacies; much in the same way as men amuse themselves with propounding and guessing riddles, or with the game of chess; to each of which diversions the sportive disputations of the ancients bore much resemblance. They were closely analogous to the wrestling and other exercises of the Gymnasium; these last being reckoned conducive to bodily vigour and activity, as the former were to habits of intellectual acuteness: but the *immediate* object in each was a sportive, not a serious contest; though doubtless fashion and emulation often occasioned an undue importance to be attached to success in each.

Zeno.

Zeno, then, is hardly to be regarded as any further a logician than as to what respects his erotetic method of disputation; a course of argument constructed on this principle being properly an hypothetical Sorites, which may easily be reduced into a series of syllogisms.

Euclid and Antisthenes.

To Zeno succeeded Euclid of Megara, and

Antisthenes, both pupils of Socrates. The former of these prosecuted the subject of the third part of his predecessor's treatise, and is said to have been the author of many of the fallacies attributed to the Stoical school. Of the writings of the latter nothing certain is known; if, however, we suppose the abovementioned sect to be his disciples in this study, and to have retained his principles, he certainly took a more correct view of the subject than Euclid. The Stoics divided all λεκτὰ, everything that could be said, into three classes: 1st, the simple Term; 2d, the Proposition; 3d, the Syllogism; *viz.* the *hypothetical;* for they seem to have had little notion of a more rigorous analysis of argument than into that familiar form.

Archytas.

We must not here omit to notice the merits of Archytas, to whom we are indebted for the doctrine of the Categories. He, however, (as well as the other writers on the subject) appears to have had no distinct view of the proper object and just limits of the science of Logic; but to have blended with it metaphysical discussions not strictly connected with it, and to have dwelt on the investigation of the nature of terms and propositions, without maintaining a constant reference to the principles of Reasoning, to which all the rest should be made subservient.

Aristotle.

The state, then, in which Aristotle found the science (if indeed it can properly be said to have existed at all before his time) appears to have been nearly this: the division into simple Terms, Propositions, and Syllogisms, had been slightly sketched out; the doctrine of the Categories, and perhaps that of the opposition of propositions, had been laid down; and, as some believe, the analysis of Species into Genus and Differentia, had been introduced by Socrates. These, at best, were rather the materials of the system, than the system itself; the foundation of which indeed he distinctly claims the merit of having laid, and which remains fundamentally the same as he left it.

It has been remarked, that the logical system is one of those few theories which have been begun and perfected by the same individual. The history of its discovery, as far as the main principles of the science are concerned, properly commences and ends with Aristotle; and this may perhaps in part account for the subsequent perversions of it. The brevity and simplicity of its fundamental truths (to which point indeed all real science is perpetually tending) has probably led many to suppose that something much more complex, abstruse, and mysterious, remained to be discovered. The vanity, too, by which all men are prompted unduly to magnify their own pursuits, has led unphilosophical minds, not in this case alone, but in many others, to extend the boundaries of their respective sciences, not by the patient developement and just application of the principles of those sciences, but by wandering into irrelevant subjects. The mystical employment of numbers by Pythagoras, in matters utterly foreign to arithmetic, is perhaps the earliest instance of the kind. A more curious and important one is the degeneracy of Astronomy into judicial Astrology; but none is more striking than the misapplication of Logic, by those who have treated of it as "the art of rightly employing the rational faculties," or who have intruded it into the province of natural philosophy, and regarded the syllogism as an engine for the investigation of nature: while they overlooked the boundless field that was before them within the legitimate limits of the science; and perceived not the importance and difficulty of the task, of completing and properly filling up the masterly sketch before them.

The writings of Aristotle were not only absolutely lost to the world for about two centuries, but seem to have been but little studied for a long time after their recovery. An art, however, of Logic, derived from the principles traditionally preserved by his disciples, seems to have been generally known, and to have been

Galen. Porphyry.

Boethius.

employed by Cicero in his philosophical works; but the pursuit of the science seems to have been abandoned for a long time. Early in the Christian era, the Peripatetic doctrines experienced a considerable revival; and we meet with the names of Galen and Porphyry as logicians: but it is not till the fifth century that Aristotle's logical works were translated into Latin by the celebrated Boethius. Not one of these seems to have made any considerable advances in developing the theory of reasoning. Of Galen's labours little is known; and Porphyry's principal work is merely on the *predicables.* We have little of the science till the revival of learning among the Arabians, by whom Aristotle's treatises on this as well as on other subjects were eagerly studied.

Schoolmen.

Passing by the names of some Byzantine writers of no great importance, we come to the times of the Schoolmen, whose waste of ingenuity and frivolous subtilty of disputation need not be enlarged upon. It may be sufficient to observe, that their fault did not lie in their diligent study of Logic, and the high value they set upon it, but in their utterly mistaking the true nature and object of the science; and by the attempt to employ it for the purpose of physical discoveries, involving every subject in a mist of words, to the exclusion of sound philosophical investigation. Their errors may serve

Bacon.

to account for the strong terms in which Bacon sometimes appears to censure logical pursuits; but that this censure was intended to bear against the extravagant perversions, not the legitimate cultivation, of the science, may be proved from his own observations on the subject, in his *Advancement of Learning.*

Locke.

His moderation, however, was not imitated in other quarters. Even Locke confounds in one sweeping censure the Aristotelic theory, with the absurd misapplications and perversions of it in later years. His objection to the science, as unserviceable in the *discovery* of truth (which has of late been often repeated), while it holds good in reference to many (misnamed) logicians, indicates that, with regard to the true nature of the science itself, he had no clearer notions than they have, of the proper province of Logic, *viz.* Reasoning; and of the distinct character of that operation from the observations and experiments which are essential to the study of nature.

Watts.

An error apparently different, but substantially the same, pervades the treatises of Watts and other modern writers on the subject. Perceiving the inadequacy of the syllogistic theory to the vast purposes to which others had attempted to apply it, he still craved after the attainment of some equally comprehensive and all-powerful system; which he accordingly attempted to construct, under the title of *The Right Use of Reason*,—which was to be a method of invigorating and properly directing all the powers of the mind—a most magnificent object indeed, but one which not only does not fall under the province of Logic, but cannot be accomplished by any *one* science or system that can even be conceived to exist. The attempt to comprehend so wide a field is no extension of science, but a mere verbal generalization, which leads only to vague and barren declamation. In every pursuit, the more precise and definite our object, the more likely we are to attain some valuable result; if, like the Platonists, who sought after the *αὐτάγαθον*,—the abstract idea of good,—we pursue some specious but ill-defined scheme of universal knowledge, we shall lose the substance while grasping at a shadow, and bewilder ourselves in empty generalities.

It is not perhaps much to be wondered at, that in still later times several ingenious writers, forming their notions of the science itself from professed masters in it, such as have just been alluded to, and judging of its value from their failures, should have treated the Aristotelic system with so much reprobation and scorn. Too much prejudiced to bestow on it the requisite attention for enabling them clearly to understand its real character and object, or even to judge correctly from the little they did understand, they have assailed the study with a host of objections, so totally irrelevant, and consequently impotent, that, considering the talents and general information of those from whom they proceed, they might excite astonishment in any one who did not fully estimate the force of very early prejudice.

Incorrect views of the nature of the science.

Logic has usually been considered by these objectors as professing to furnish a *peculiar* method of reasoning, instead of a method of analyzing that mental process which must *invariably* take place in all correct reasoning; and accordingly they have contrasted the ordinary mode of reasoning with the syllogistic, and have brought forward with an air of triumph the argumentative skill of many who never learned the system; a mistake no less gross than if any one should regard Grammar as a peculiar Language, and should contend against its utility, on the ground that many speak correctly who never studied the principles of grammar. For Logic, which is, as it were, the Grammar of Reasoning, does not bring forward the regular Syllogism as a distinct mode of argumentation, designed to be substituted for any other mode; but as the form to which *all* correct reasoning may be ultimately reduced; and which, consequently, serves the purpose (when we are employing Logic as an *art*) of a test to try the validity of any argument; in the same manner as by chemical analysis we develope and submit to a distinct examination the elements of which any compound body is composed, and are thus enabled to detect any latent sophistication and impurity.

Complaints have also been made that Logic leaves untouched the greatest difficulties, and those which are the sources of the chief errors in reasoning; viz. the ambiguity or indistinctness of Terms, and the doubts respecting the degrees of evidence in various Propositions: an objection which is not to be removed by any such attempt as that of Watts to lay down "rules for forming clear ideas, and for guiding the judgment;" but by replying that no art is to be censured for not teaching more than falls within its province, and indeed more than can be taught by any conceivable art. Such a system of universal knowledge as should instruct us in the full meaning or meanings of every term, and the truth or falsity,—certainty or uncertainty,—of every proposition, thus superseding all other studies, it is most unphilosophical to expect, or even to imagine. And to find fault with Logic for not performing this, is as if one should object to the science of Optics for not giving sight to the blind; or as if (like the man of whom Warburton tells a story in his *Div. Leg.*) one should complain of a reading-glass for being of no service to a person who had never learned to read.

In fact, the difficulties and errors above alluded to are *not* in the process of Reasoning itself (which alone is the appropriate province of Logic) but in the *subject-matter* about which it is employed. This process will have been correctly conducted if it have conformed to the logical rules, which preclude the possibility of any error creeping in *between* the principles from which we are arguing, and the conclusions we deduce from them. But still that conclusion may be false, if the principles we start from are so. In like manner, no arithmetical skill will secure a correct result to a calculation, unless the data are correct from which we calculate: nor does any one on that account undervalue Arithmetic; and yet the objection against Logic rests on no better foundation.

There is in fact a striking analogy in this respect between the two sciences. All Numbers (which are the subject of Arithmetic) must be numbers *of some things*, whether coins, persons, measures, or any thing else; but to introduce into the science any notice of the *things* respecting which calculations are made, would be evidently irrelevant, and would destroy its scientific character: we proceed therefore with arbitrary signs representing numbers in the abstract. So also does Logic pronounce on the validity of a regularly-constructed argument, equally well, though arbitrary symbols may have been substituted for the terms; and, consequently, without any regard to the things signified by those terms. And the possibility of doing this (though the employment of such arbitrary symbols has been absurdly objected to, even by writers who understood not only Arithmetic but Algebra) is a proof of the strictly scientific character of the system. But many professed logical writers, not attending to the circumstances which have been just mentioned, have wandered into disquisitions on various branches of knowledge; disquisitions which must evidently be as boundless as human knowledge itself, since there is no subject on which Reasoning is not employed, and to which, consequently, Logic may not be *applied.* The error lies in regarding every thing as the *proper province* of Logic, to which it is *applicable.* A similar error is complained of by Aristotle, as having taken place with respect to rhetoric; of which, indeed, we find specimens in the arguments of several of the interlocutors in *Cic. de Oratore.*

From what has been said, it will be evident that there is hardly any subject to which it is so difficult to introduce the student in a clear and satisfactory manner, as the one we are now engaged in. In any other branch of knowledge, the reader, if he have any previous acquaintance with the subject, will usually be so far the better prepared for comprehending the exposition of the principles; or if he be entirely a stranger to it, will at least come to the study with a mind unbiassed, and free from prejudices and misconceptions: whereas, in the present case, it cannot but happen, that many who have given some attention to logical pursuits (or what are usually considered as such) will have rather been bewildered by fundamentally erroneous views, than prepared, by the acquisition of just principles, for ulterior progress; and that not a few who pretend not to any acquaintance whatever with the science, will yet have imbibed either such prejudices against it, or such false notions respecting its nature, as cannot but prove obstacles in their study of it.

There is, however, a difficulty which exists more or less in all abstract pursuits; though it is perhaps more felt in this, and often occasions it to be rejected by beginners as dry and tedious; viz. the difficulty of perceiving to what ultimate end,—to what practical or interesting application—the abstract principles lead which are first laid before the student; so that he will often have to work his way patiently through the most laborious part of the system before he can gain any clear idea of the drift and intention of it.

This complaint has often been made by che-

Chapter I.

ANALYTICAL OUTLINE OF THE SCIENCE.

§ 1.

In every instance in which we *reason*, in the strict sense of the word, *i. e.* make use of arguments, whether for the sake of refuting an adversary, or of conveying instruction, or of satisfying our own minds on any point, whatever may be the subject we are engaged on, a certain process takes place in the mind, which is one and the same in all cases, provided it be correctly conducted.

Of course it cannot be supposed that every one is even conscious of this process in his own mind; much less, is competent to explain the principles on which it proceeds; which indeed is, and cannot but be, the case with every other process respecting which any system has been formed; the practice not only may exist independently of the theory, but *must* have preceded the theory; there must have been Language before a system of Grammar could be devised; and musical compositions previous to the science of Music. This, by the way, will serve to expose the futility of the popular objection against

Logic, that men may reason very well who know nothing of it.* The parallel instances adduced,

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* Locke has a great deal to this purpose; *e. g.* in chap. xvii. "on Reason," (which, by the way, he perpetually confounds with *Reasoning.*) He says, in § 4, "If syllogisms must be taken for the only proper instrument of reason and means of knowledge, it will follow, that before Aristotle there was not one man that did or could know any thing by reason; and that since the invention of syllogisms there is not one in ten thousand that doth. But God has not been so sparing to men to make them barely two-legged creatures, and left it to Aristotle to make them rational, *i. e.* those few of them that he could get so to examine the grounds of syllogisms, as to see that in above threescore ways that three propositions may be laid together, there are but fourteen wherein one may be sure that the conclusion is right," *&c. &c.* "God has been more bountiful to mankind than so: He has given them a mind that can reason without being instructed in methods of syllogizing," *&c. &c.* All this is not at all less absurd than if any one, on being told of the discoveries of modern chemists respecting caloric, and on hearing described the process by which it is conducted through a boiler into the water, which it converts into a gas of sufficient elasticity to overcome the pressure of the atmosphere, *&c.*, should reply, "If all this were so, it would follow that before the time of these chemists no one ever did or could make any liquor boil."

In an ordinary, obscure, and trifling writer, all this confusion of thought and common-place declamation might as well have been left unnoticed; but it is due to the general ability and to the celebrity of such an author as Locke, that errors of this kind should be exposed.

He presently after inserts an encomium upon Aristotle, in which he is equally unfortunate; he praises him for the "*invention* of syllogisms;" to which he certainly had no more claim than Linnæus to the *creation* of plants and animals, or Hervey to the praise of having *made the blood* any one were to mistake *grammar* for a peculiar *language*, and to suppose it possible to speak correctly without speaking grammatically. They have in short considered Logic as *an* art of reasoning; whereas (so far as it is an art) it is *the* art of reasoning; the logician's object being, not to lay down principles by which one *may* reason, but by which all *must* reason, even though they are not distinctly aware of them:—to lay down rules, not which *may* be followed with advantage, but which cannot possibly be *departed* from in sound reasoning. These misapprehensions and objections being such as lie on the very threshold of the subject, it would have been hardly possible, without noticing them, to convey any just notion of the nature and design of the logical system.

§ 2.

Supposing it then to have been perceived that the operation of reasoning is in all cases the same, the analysis of that operation could not fail to strike the mind as an interesting matter of inquiry: and moreover, since (apparent) arguments which are unsound and inconclusive, are so often employed either from error or design; and since even those who are not misled by these fallacies, are so often at a loss to detect and expose them in a manner satisfactory to others, or even to themselves; it could not but appear desirable to lay down some general rules of reasoning, applicable to all cases, by which a person might be enabled the more readily and clearly to state the grounds of his own conviction, or of his objection to the arguments of an opponent; instead of arguing at random, without any fixed and acknowledged principles to guide his procedure. Such rules would be analogous to those of Arithmetic, which obviate the tediousness and uncertainty of calculations in the head, wherein, after much labour, different persons might arrive at different results, without any of them being able distinctly to point out the error of the rest. A system of such rules, it is obvious, must, instead of deserving to be called the art of wrangling, be more justly characterised as the "art of cutting short wrangling," by bringing the parties to issue at once, if not to agreement; and thus saving a waste of ingenuity.

Analysis of argument.

In pursuing the supposed investigation, it will be found that every conclusion is deduced, in reality, from two other propositions; (thence called *Premises*;) for though one of these may be, and commonly is, suppressed, it must nevertheless be understood as admitted; as may easily be made evident by supposing the denial of the suppressed premiss, which will at once invalidate the argument: *e. g.* if any one, from perceiving that "the world exhibits marks of design," infers that "it must have had an intelligent author," though he may not be aware in his own mind of the existence of any other premiss, he will readily understand, if it be *denied* that "whatever exhibits marks of design must have had an intelligent author," that the affirmative of that proposition is necessary to the validity of the argument. An argument thus stated regularly and at full length, is called a Syllogism; which therefore is evidently not a peculiar *kind of argument*, but only a peculiar *form* of expression, in which every argument may be stated.

When one of the premises is suppressed (which for brevity's sake it usually is) the argument is called an Enthymeme. And it may be worth while to remark, that when the argument is in this state, the objections of an opponent are (or rather appear to be) of two kinds; *viz.* either objections to the *assertion* itself, or objections to its *force* as an argument; *e. g.* in the above instance, an atheist may be conceived either denying that the world *does* exhibit marks of design, or denying that it *follows* from thence that it had an intelligent author. Now it is important to keep in mind that the only difference in the two cases is, that in the one the *expressed* premiss is denied, in the other the *suppressed;* for the *force as an argument* of either premiss depends on the other premiss: if both be admitted, the conclusion legitimately connected with them cannot be denied.

It is evidently immaterial to the argument whether the conclusion be placed first or last; but it may be proper to remark, that a premiss placed *after* its conclusion is called the ***Reason*** of it, and is introduced by one of those conjunctions which are called causal; *viz.* " since," " because," *&c.* which may indeed be employed to designate a premiss, whether it came first or last. The illative conjunctions, " therefore," *&c.* designate the conclusion.

It is a circumstance which often occasions error and perplexity, that both these classes of conjunctions have also another signification, being employed to denote, respectively, *Cause* and *Effect*, as well as *Premiss* and *Conclusion: e. g.* If I say (to use an instance employed by Aristotle) "yonder is a fixed star, *because* it twinkles," or, "it twinkles, and *therefore* is a fixed star," I employ these conjunctions to denote the connection of *premiss and conclusion;* for it is plain that the twinkling of the star is not the cause of its being fixed, but only the cause of *my knowing* that it is so; but if I say, "it twinkles because it is a fixed star," or "it is a fixed star, and therefore twinkles," I am using the same conjunctions to denote the connection of *cause and effect;* for in this case the **Proof and cause.** twinkling of the star, being evident to the eye, tageously, resorted to in addressing those who are ignorant of Logical rules;* but to lay down such rules, and employ *them* as a test, is evidently a safer and more compendious, as well as a more philosophical mode of proceeding. To attain these, it would plainly be necessary to analyze some clear and valid arguments, and to observe in what their conclusiveness consists.

Let us suppose, then, such an examination to be made of the syllogism above mentioned: "whatever exhibits marks of design had an intelligent author; the world exhibits marks of design; therefore the world had an intelligent author." In the first of these premises we find it assumed universally of the *class* of "things which exhibit marks of design," that they had an intelligent author; and in the other premiss, "the world" is referred to that class as comprehended in it: now it is evident, that whatever is said of the whole of a class, may be said of any thing comprehended in that class; so that we are thus authorized to say of the world, that "it had an intelligent author." Again, if we examine a syllogism with a negative conclusion, as, *e. g.* "nothing which exhibits marks of design could have been produced by chance: the world exhibits *&c.*; therefore the world could not have been produced by chance:" the process of Reasoning will be found to be the same; since it is evident, that whatever is *denied* universally of any class may be denied of anything that is comprehended in that class.

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* An exposure of some of Hume's fallacies in his "Essay on Miracles" and elsewhere, was attempted, on this plan, a few years ago, in a pamphlet (published anonymously, as the nature of the argument required, but which I see no reason against acknowledging) entitled "Historic Doubts relative to Napoleon Buonaparte;" in which it was shown that the existence of that extraordinary person could not, on Hume's principles, be received as a well-authenticated fact; since it rests on evidence less strong than that which supports the Scriptures.

On further examination it will be found, that all valid arguments whatever may be easily reduced to such a form as that of the foregoing syllogisms; and that consequently the principle on which they are constructed is the UNIVERSAL PRINCIPLE of Reasoning. So elliptical, indeed, is the ordinary mode of expression, even of those who are considered as prolix writers,—*i. e.* so much is implied and left to be understood in the course of argument, in comparison of what is actually stated (most men being impatient, even to excess, of any appearance of unnecessary and tedious formality of statement), that a single sentence will often be found, though perhaps considered as a single argument, to contain, compressed into a short compass, a chain of several distinct arguments; but if each of these be fully developed, and the whole of what the author intended to imply be stated expressly, it will be found that all the steps even of the longest and most complex train of reasoning, may be reduced into the above form.

It is a mistake (which might appear scarcely worthy of notice, had not so many, even esteemed writers, fallen into it) to imagine that Aristotle and other logicians meant to propose that this prolix form of unfolding arguments should universally supersede, in argumentative discourses, the common forms of expression; and that to reason logically, means, to state all arguments at full length in the syllogistic form: and Aristotle has even been charged with inconsistency for not doing so; it has been said, that "in his *Treatises of Ethics, Politics, &c.* he argues like a rational creature, and never attempts to bring his own system into practice."* As well might a chemist be charged with inconsistency for making use of any of the compound substances that are commonly employed, without previously analyzing and resolving them into their simple elements; as well might it be imagined that, to speak grammatically, means, to parse every sentence we utter. The chemist (to pursue the illustration) keeps by him his tests and his method of analysis, to be employed when any substance is offered to his notice, the composition of which has not been ascertained, or in which adulteration is suspected. Now a fallacy may aptly be compared to some adulterated compound; "it consists of an ingenious "mixture of truth and falsehood, so entangled, "—so intimately blended,—that the falsehood "is (in the chemical phrase) *held in solution*: "one drop of sound logic is that test which "immediately disunites them, makes the foreign "substance visible, and precipitates it to the "bottom."*

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* Lord Kames.

§ 4.

Aristotle's dictum.

But to resume the investigation of the principles of reasoning: the maxim resulting from the examination of a syllogism in the foregoing form, and of the application of which every valid argument is in reality an instance, is, "that whatever is predicated (*i. e.* affirmed or denied) universally, of any class of things, may be predicated, in like manner, (*viz.* affirmed or denied) of any thing comprehended in that class." This is the principle, commonly called the *dictum de omni et nullo*, for the establishment of which we are indebted to Aristotle, and which is the keystone of his whole logical system. It is not a little remarkable that some, otherwise judicious writers, should have been so carried away by their zeal against that philosopher, as to speak with scorn and ridicule of this principle, on account of its obviousness and simplicity; though they would probably perceive at once, in any other case, that it is the greatest triumph of philosophy to refer many, and seemingly very various, phenomena to one, or a very few, simple principles; and that the more simple and evident such a principle is, provided it be truly applicable to all the cases in question, the greater is its value and scientific beauty. If, indeed, any principle be regarded as *not* thus applicable, *that* is an objection to it of a different kind. Such an objection against Aristotle's dictum, no one has ever attempted to *establish* by any kind of proof; but it has often been *taken for granted;* it being (as has been stated) very commonly supposed, without examination, that the syllogism is a *distinct kind of argument,* and that the rules of it accordingly do not apply, nor were intended to apply, to *all* reasoning whatever. Under this misapprehension Campbell* labours, with some ingenuity, and not without an air of plausibility, to show that every syllogism must be futile and worthless, because the premises virtually assert the conclusion: little dreaming, of course, that his objections, however specious, lie against the *process of reasoning itself*, universally; and will therefore, of course, apply to those very arguments which he is himself adducing.

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* This excellent illustration is cited from a passage in an anonymous pamphlet, "An Examination of Kett's Logic." The author displays, though in a hasty production, great reach of thought, as well as knowledge of his subject.

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* "Philosophy of Rhetoric."

It is much more extraordinary to find another author * adopting, expressly, the very same objections, and yet distinctly admitting (within a few pages) the possibility of reducing every course of argument to a series of syllogisms.

The same writer brings an objection against the Dictum of Aristotle, which it may be worth while to notice briefly, for the sake of setting in a clearer light the real character and object of that principle. Its application being, as has been seen, to a regular and conclusive syllogism, he supposes it intended to prove and *make evident* the conclusiveness of such a syllogism; and remarks how unphilosophical it is to attempt giving a *demonstration of a demonstration.* And certainly the charge would be just, if we could imagine the logician's object to be, to *increase the certainty* of a conclusion which we are supposed to have already arrived at by the clearest possible mode of proof. But it is very strange that such an idea should ever have occurred to one who had even the slightest tincture of natural philosophy: for it might as well be imagined that a natural philosopher's or a chemist's design is to strengthen the testimony of our senses by *à priori* reasoning, and to convince us that a stone when thrown will fall to the ground, and that gunpowder will explode when fired; because they show that according to their principles those phenomena must take place as they do. But it would be reckoned a mark of the grossest ignorance and stupidity not to be aware that their object is not to *prove* the existence of an individual phenomenon, which our eyes have witnessed, but (as the phrase is) to *account* for it: *i. e.* to show according to what *principle* it takes place;—to refer, in short, the *individual case* to a *general law* of nature. The object of Aristotle's dictum is precisely analogous: he had, doubtless, no thought of adding to the force of any individual syllogism; his design was to point out the *general principle* on which that process is conducted which takes place in each syllogism. And as the Laws * of nature (as they are called) are in reality merely *generalized facts*, of which all the phenomena coming under them are particular instances; so the proof drawn from Aristotle's Dictum is not a distinct demonstration brought to confirm another demonstration, but is merely a generalized and abstract statement of *all* demonstration whatever; and is, therefore, in fact, *the very demonstration* which, (*mutatis mutandis*) accommodated to the various subject-matters, is actually employed in each particular case.

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* Dugald Stewart: Philosophy, vol. ii.

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* Appendix, No. I. art. *Law*.

In order to trace more distinctly the different steps of the abstracting process, by which any particular argument may be brought into the most general form, we may first take a syllogism stated accurately and at full length, such as the example formerly given, "whatever exhibits marks of design, &c.," and then somewhat generalize the expression, by substituting (as in Algebra) arbitrary unmeaning symbols for the significant terms that were originally used; the syllogism will then stand thus; "every B is A; C is B; therefore C is A." The reasoning is no less evidently valid when thus stated, whatever terms A, B, and C, respectively may be supposed to stand for: such terms may indeed be inserted as to make all, or any of, the assertions *false*; but it will still be no less impossible for any one who *admits* the truth of the *premises*, in an argument thus constructed, to deny the conclusion; and this it is that constitutes the conclusiveness of an argument.

Viewing then the syllogism thus expressed, it appears clearly, that "A stands for *any thing whatever* that is affirmed of a whole class," (*viz.* of *every* B) "which comprehends or contains in it *something else*," *viz.* C (of which B is, in the second premiss, affirmed); and that, consequently, the first term (A) is, in the conclusion, predicated of the third C.

Now to assert the validity of this process, now before us, is to state the very Dictum we are treating of, with hardly even a verbal alteration; *viz.*:

1. Anything whatever, predicated of a whole class,

2. Under which class something else is contained,

3. May be predicated of that which is so contained.

The three members into which the maxim is here distributed, correspond to the three propositions of the syllogism to which they are intended respectively to apply.

The advantage of substituting for the terms, in a regular syllogism, arbitrary unmeaning symbols, such as letters of the alphabet, is much the same as in mathematics: the reasoning itself is then considered, by itself, clearly, and without any risk of our being misled by the truth or falsity of the conclusion; which is, in fact, accidental and variable; the essential point being, as far as the *argument* is concerned, the *connexion between* the premises and the conclusion. We are thus enabled to embrace the general principle of all reasoning, and to perceive its applicability to an indefinite number of individual cases. That Aristotle, therefore, should have been accused of making use of these symbols for the purpose of *darkening* his demonstrations, and that too by persons not unacquainted with geometry and algebra, is truly astonishing. If a geometer, instead of designating the four angles of a square by four letters, were to call them *north, south, east,* and *west,* he would not render the demonstration of a theorem the easier; and the learner would be much more likely to be perplexed in the application of it.

It belongs then exclusively to a syllogism, properly so called (*i. e.* a valid argument, so stated that its conclusiveness is evident from the mere *form* of the expression), that if letters, or any other unmeaning symbols, be substituted for the several terms, the validity of the argument shall still be evident. Whenever this is not the case, the supposed argument is either unsound and sophistical, or else may be reduced (without any alteration of its meaning) into the syllogistic form; in which form, the test just mentioned may be applied to it.

Detection of unsound arguments.

What is called an unsound or fallacious argument, *i. e.* an *apparent* argument which is, in reality, none, cannot, of course, be reduced into this form; but when stated in the form most nearly approaching to this that is possible, its fallaciousness becomes more evident, from its nonconformity to the foregoing rule: *e. g.* "whoever is capable of deliberate crime is responsible; an infant is not capable of deliberate crime; therefore, an infant is not responsible:" here the term "responsible" is affirmed universally of "those capable of deliberate crime;" it might, therefore, according to Aristotle's Dictum, have been affirmed of anything contained under that class; but, in the instance before us, nothing is mentioned as contained under that class; only, the term "infant" is *excluded* from that class; and though what is affirmed of a whole class may be affirmed of anything that *is* contained under it, there is no ground for supposing that it may be *denied* of whatever is *not* so contained; for it is evidently possible that it may be applicable to a whole class and to something else besides: to say, *e. g.* that all trees are vegetables, does not imply that *nothing else* is a vegetable. Nor, when it is said, that all who are capable of deliberate crime are responsible, does this imply, that no others are responsible; for though this may be very *true*, it has not been asserted in the premiss before us; and in the analysis of an argument, we are to discard all consideration of what *might* be asserted; contemplating only what *actually is* laid down in the premises. It is evident, therefore, that such an apparent argument as the above does not comply with the rule laid down, nor can be so stated as to comply with it, and is consequently invalid.

Again, in this instance, "food is necessary to life; corn is food; therefore, corn is necessary to life:" the term "necessary to life" is affirmed of food, but *not universally;* for it is not said of *every kind of food:* the meaning of the assertion being manifestly that *some* food is necessary to life: here again, therefore, the rule has not been complied with, since that which has been predicated, (*i. e.* affirmed or denied) not of the *whole,* but of a *part* only of a certain class, cannot be, on that ground, predicated of anything whatever which is contained under that class.

§ 5.

The fallacy in this last case is, what is usually described in logical language as consisting in the "non-distribution of the middle term:" *i. e.* its not being employed to denote *all* the objects to which it is applicable. In order to understand this phrase, it is necessary to observe, that a proposition being an expression in which one thing is affirmed or denied of another; *e. g.* "A is B," both that of which something is said, and that which is said of it (*i. e.* both A and B), are called "terms," from their being (in their nature) the extremes or *boundaries* of the proposition; and there are, of course, two, and but two, terms in a proposition (though it may so happen that either of them may consist either of one *word*, or of several); and a term is said to be "distributed," when it is taken universally, so as to stand for everything it is capable of being applied to; and consequently "undistributed," when it stands for a portion only of the things signified by it: thus, "*all* food," or *every* kind of food, are expressions which imply the distribution of the term "food;" "*some* food" would imply its non-distribution: and it is also to be observed, that the term of which, in one premiss, something is affirmed or denied, and to which, in the other premiss, something else is referred as contained in it, is called the "middle" term in the syllogism, as standing *between* the other two (*viz.* the two terms of the conclusion), and being the medium of proof. Now it is plain, that if in each premiss a *part* only of this middle term is employed, *i. e.* if it be not at all distributed, no conclusion can be drawn. Hence, if, in the example formerly adduced, it had been merely stated that "*something*" (not "*whatever*," or "*everything*") "which exhibits marks of design, is the work of an intelligent author," it would not have followed, from the world's exhibiting marks of design, that that is the work of an intelligent author.

Distribution of terms.

It is to be observed, also, that the words "all" and "every," which mark the distribution of a term, and "some," which marks its non-distribution, are not always expressed: they are frequently understood, and left to be supplied by the context; *e. g.* "food is necessary:" viz. "*some* food;" "man is mortal;" viz. "*every* man." Propositions thus expressed are called by logicians "*indefinite*," because it is left undetermined by the form of the expression whether the "subject" (the term of which something is affirmed or denied being called the "subject" of the proposition, and that which is said of it, the "predicate") be distributed or not. Nevertheless it is plain that in every proposition the subject either is, or is not, distributed, though it be not declared whether it is or not; consequently, every proposition, whether expressed indefinitely or not, must be either "universal" or "particular;" those being called universal, in which the predicate is said of the whole of the subject (or, in other words, where the subject is distributed); and those particular, in which it is said only of a part of the subject: *e. g.* "All men are sinful," is universal; "some men are sinful," particular: and this division of propositions is, in logical language, said to be according to their "*quantity*."

Quantity and quality of propositions.

But the distribution or non-distribution of the *predicate* is entirely independent of the *quantity* really takes place in our minds is, that we *refer* that term (of which the other is to be thus predicated) to some class (*i. e.* middle term) of which that other may be affirmed, or denied, as the case may be. Whatever the subject matter of an argument may be, the reasoning itself, considered by itself, is in every case the same process; and if the writers against Logic had kept this in mind, they would have been cautious of expressing their contempt of what they call "syllogistic reasoning," which is in truth *all* reasoning; and instead of ridiculing Aristotle's principle for its obviousness and simplicity, would have perceived that these are, in fact, its highest praise: the easiest, shortest, and most evident theory, provided it answer the purpose of explanation, being ever the best.

§ 6.

If we conceive an inquirer to have reached, in his investigation of the theory of reasoning, the point to which we have now arrived, a question which would be likely next to engage his attention, is that of *Predication; i. e.* since in reasoning we are to find a middle term, which may be predicated affirmatively of the subject in question, we are led to inquire what terms may be affirmed, and what denied, of what others.

Common and singular terms.

It is evident that proper names, or any other terms, which denote each but a single individual, as "Cæsar," "the Thames," "the Conqueror of Pompey," "this river" (hence called in Logic "singular terms") cannot be affirmed of anything besides themselves, and are therefore to be denied of anything else; we may say, "this river is the Thames," or "Cæsar was the conqueror of Pompey;" but we cannot say of anything else that it is the Thames, *&c.*

On the other hand, those terms which are called "common," as denoting any one individual of a whole class, as "river," "conqueror," may of course be affirmed of any, or all that belong to that class: as, "the Thames is a river;" "the Rhine and the Danube are rivers."

Common terms, therefore, are called "predicables" (viz. *affirmatively* predicable), from their capability of being affirmed of others: a singular term, on the contrary, may be the Subject of a proposition, but never the Predicate, unless it be of a negative proposition; (as, *e. g.* the first-born of Isaac was not Jacob;) or, unless the subject and predicate be only two expressions for the same individual object; as in some of the above instances.

Abstraction and generalization.

The process by which the mind arrives at the notions expressed by these "common" (or in popular language, "general") terms, is properly called Generalization; though it is usually (and truly) said to be the business of *abstraction;* for of the proposition; nor are the signs "all" and "some" ever affixed to the predicate; because its distribution depends upon, and is indicated by, the "*quality*" of the proposition; *i. e.* its being *affirmative* or *negative;* it being a universal rule, that the predicate of a negative proposition is distributed, and of an affirmative, undistributed.* The reason of this may easily be understood, by considering that a term which stands for a whole class may be applied to (*i. e. affirmed* of) anything that is comprehended under that class, though the term of which it is thus affirmed may be of much narrower extent than that other, and may, therefore, be far from coinciding with the *whole* of it: thus it may be said with truth, that "the Negroes are uncivilized," though the term uncivilized be of much wider extent than "Negroes," comprehending, besides them, Hottentots, *&c.*; so that it would not be allowable to assert, that "*all* who are uncivilized are Negroes;" it is evident, therefore, that it is a *part* only of the term "uncivilized" that has been affirmed of "Negroes:" and the same reasoning applies to every affirmative proposition; for though it may so happen that the subject and predicate coincide, *i. e.* are of equal extent, as, *e. g.* "all men are rational animals;" "all equilateral triangles are equiangular;" (it being equally true, that "all rational animals are men," and that "all equiangular triangles are equilateral;") yet this is not *implied by the form of the expression;* since it would be no less true, that "all men are rational animals," even if there were other rational animals besides man.

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* The learner may perhaps be startled at being told that the predicate of an affirmative is *never* distributed; especially as Aldrich has admitted that accidentally this *may* take place; as in such a proposition as "all equilateral triangles are equiangular;" but this is not accurate: he might have said that in such a proposition as the above the predicate is *distributable*, but not that it is actually distributed: *i. e.* it *so happens* that "all equiangular triangles are equilateral;" but this is *not implied* in the previous assertion; and the point to be considered is, not what *might be* said with truth, but what actually *has been* said.

It is plain, therefore, that if *any part* of the predicate is applicable to the subject, it may be affirmed, and, of course, cannot be denied, of that subject; and consequently, when the predicate *is denied* of the subject, it is implied that *no part* of that predicate is applicable to that subject; *i. e.* that the *whole* of the predicate is denied of the subject: for to say, *e. g.* that "no beasts of prey ruminate," implies that beasts of prey are excluded from the *whole class* of ruminant animals, and consequently that "no ruminant animals are beasts of prey." And hence results the above-mentioned rule, that the distribution of the predicate is implied in negative propositions, and its non-distribution in affirmatives.

It is to be remembered, therefore, that it is not sufficient for the middle term to *occur* in a universal proposition; since if that proposition be an affirmative, and the middle term be the *predicate* of it, it will not be distributed: *e. g.* if in the example formerly given, it had been merely asserted, that "all the works of an intelligent author show marks of design," and that "the universe shows marks of design," nothing could have been proved; since, though both these propositions are universal, the middle term is made the predicate in each, and both are affirmative; and accordingly, the rule of Aristotle is not here complied with, since the term "work of an intelligent author," which is to be proved applicable to "the universe," would not have been affirmed of the middle term ("what shows marks of design"), under which "universe" is contained; but the middle term, on the contrary, would have been affirmed of it.

If, however, one of the premises be negative, the middle term may then be made the predicate of that, and will thus, according to the above remark, be distributed: *e. g.* "no ruminant animals are predacious; the lion is predacious; therefore the lion is not ruminant:" this is a valid syllogism; and the middle term (predacious) is distributed by being made the predicate of a negative proposition. The form, indeed, of the syllogism is not that prescribed by the dictum of Aristotle, but it may easily be reduced to that form, by stating the first proposition thus: "no predacious animals are ruminant;" which is manifestly implied (as was above remarked) in the assertion that "no ruminant animals are predacious." The syllogism will thus appear in the form to which the dictum applies.

It is not every argument, indeed, that can be reduced to this form by so short and simple an alteration as in the case before us: a longer and more complex process will often be required; and rules will hereafter be laid down to facilitate this process in certain cases: but there is no sound argument but what *can* be reduced into this form, without at all departing from the real meaning and drift of it; and the form will be found (though more prolix than is needed for ordinary use) the most perspicuous in which an argument can be exhibited.

All reasoning whatever, then, rests on the one simple principle laid down by Aristotle, that "what is predicated, either affirmatively or negatively, of a term distributed, may be predicated in like manner (*i. e.* affirmatively or negatively) of anything contained under that term." So that when our object is to prove any proposition, *i. e.* to show that one term may rightly be affirmed or denied of another, the process which couch-grass, and which he has been used to class with nettles and thistles, to which it has no *botanical* affinity, ranked by the botanist as a species of Wheat, (*Triticum Repens*.) And yet neither of these classifications is in itself erroneous or irrational; though it would be absurd, in a botanical treatise, to class plants according to their agricultural use; or in an agricultural treatise, according to the structure of their flowers.

The utility of these considerations, with a view to the present subject, will be readily estimated, by recurring to the account which has been already given of the process of reasoning; the analysis of which shows, that it consists in referring the term we are speaking of to some class, *viz*. a middle term; which term again is referred to or excluded from (as the case may be) another class, *viz*. the term which we wish to affirm or deny of the subject of the conclusion. So that the quality of our reasoning in any case must depend on our being able, correctly, clearly and promptly, to *abstract* from the subject in question that which may furnish a Middle-term suitable to the occasion.

The imperfect and irregular sketch which has here been attempted, of the logical system, may suffice (even though some parts of it should not be at once fully understood by those who are entirely strangers to the study) to point out the general drift and purpose of the science, and to render the details of it both more interesting and more intelligible. The analytical form, which has here been adopted, is, generally speaking, the best suited for *introducing* any science in the plainest and most interesting form; though the synthetical, which will henceforth be employed, is the most regular, and the most compendious form for storing it up in the memory.

CHAPTER II.

SYNTHETICAL COMPENDIUM.

Part I.—*Of the Operations of the Mind and of Terms.*

Operations of the mind.

THERE are three operations of the mind which are concerned in argument: 1st. Simple Apprehension; 2d. Judgment; 3d. Discourse or Reasoning.*

Simple-apprehension.

1st. Simple-apprehension is the notion (or conception) of any object in the mind, analogous to the perception of the senses. It is either Incomplex or Complex: Incomplex Apprehension is of one object, or of several without any *relation* being perceived between them, as of "a man," "a horse," "cards:" complex is of several *with* such a relation, as of "a man on horseback," "a pack of cards."

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* Logical writers have in general begun by laying down that there are, *in all*, three operations of the mind: *(in universum* tres) an assertion by no means incontrovertible, and which, if admitted, is nothing to the present purpose: our business is with *argumentation*, and the operations of the mind implied in that; what others there may be, or whether any, are irrelevant questions.

The opening of a treatise with a statement respecting the operations of the mind universally, tends to foster the prevailing error (from which probably the minds of the writers were not exempt) of supposing that Logic professes to teach "the use of the mental faculties in general:"—the "right use of reason," according to Watts.

Judgment.

2d. Judgment is the comparing together in the mind two of the notions (or ideas) which are the objects of Apprehension, whether complex or incomplex, and pronouncing that they *agree* or *disagree* with each other: (or that one of them *belongs* or does not belong to the other.) Judgment, therefore, is either *affirmative* or *negative*.

Discourse.

3d. Reasoning (or discourse) is the act of proceeding from one judgment, to another *founded* upon it, (or the result of it.)

§ 2.

Language.

Language affords the *signs* by which these operations of the mind are expressed and communicated. An act of *apprehension* expressed in language, is called a *term*; an act of *judgment*, a *proposition*; an act of *reasoning*, an *argument*; (which, when regularly expressed, is a syllogism;) as *e. g.*

> "Every dispensation of Providence is beneficial;
> Afflictions are dispensations of Providence,
> Therefore they are beneficial:"

is a Syllogism; (the act of reasoning being indicated by the word "*therefore*,") it consists of three *propositions*, each of which has (necessarily) two *terms*, as "beneficial," "dispensations of Providence," *&c.*[*]

Terms. Propositions. Syllogisms.

Language is employed for various purposes: *e. g.* the province of an historian is to *convey information;* of an orator, to *persuade, &c.* Logic is concerned with it only when employed for the purpose of *reasoning,* (*i. e.* in order to *convince;*) and whereas, in reasoning, *terms* are liable to be *indistinct,* (*i. e.* without any clear, determinate meaning,) *propositions* to be *false,* and *arguments, inconclusive,* Logic undertakes directly and completely to guard against *this last* defect, and, incidentally and in a certain degree, against the others, as far as can be done by the *proper use of language:* it is, therefore, (when regarded as an *art*†) "the Art of employing language properly for the purpose of Reasoning." Its importance no one can rightly estimate who has not long and attentively considered how much our thoughts are influenced by expressions, and how much error, perplexity, and labour are occasioned by a faulty use of language.

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[*] In introducing the mention of *language* previously to the definition of Logic, I have departed from established practice, in order that it may be clearly understood, that Logic is *entirely conversant about language:* a truth which most writers on the subject, if indeed they were fully aware of it themselves, have certainly not taken due care to impress on their readers. Aldrich's definition of Logic, for instance, does not give any hint of this.

† It is to be observed, however, that as a *science* is conversant about *knowledge only,* an *art* is the *application* of knowledge to *practice:* hence Logic (as well as any other system of knowledge) becomes, when applied to practice, an *art;* while confined to the *theory* of reasoning, it is strictly a *science:* and it is as such that it occupies the higher place in point of dignity, since it professes to develope some of the most interesting and curious intellectual phenomena. It is surely strange, therefore, to find in a

A syllogism being, as aforesaid, resolvable into three propositions, and each proposition containing two terms; of these terms, that which is spoken of is called the *subject;* that which is said of it, the *predicate;* and these two are called the *terms* (or extremes) because, logically, the Subject is placed *first,* and the Predicate *last:* and, in the middle, the Copula, which indicates the act of judgment, as by it the Predicate is affirmed or denied of the Subject. It must be either IS or IS NOT; the substantive verb being the only *verb* recognised by Logic: all others are resolvable, by means of the verb, "to be," and a participle or adjective; *e. g.* "the Romans conquered:" the word conquered is both copula and predicate, being equivalent to "*were* (Cop.) *victorious*" (Pred.)*

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treatise on Logic, a distinct dissertation to prove that it is an Art and *not* a Science!

* It is proper to observe, that the copula, as such, has no relation to *time;* but expresses merely the agreement or disagreement of two given terms: hence, if any other *tense* of the substantive verb, besides the present, is used,

§ 3.

It is evident, that a Term may consist either of one Word or of several; and that it is not every word that is capable of being employed by itself as a Term; *e. g.* Adverbs, Prepositions, *&c.* and also Nouns in any other case besides the nominative. A Noun may be by itself a term; a Verb (all except the substantive verb used as the copula) is resolvable into the Copula and Predicate, to which it is equivalent; and, indeed, is often so resolved in the mere rendering out of one language into another; as "*ipse adest,*" "he is present." It is to be observed, however, that under " verb," we do not include the Infinitive, which is properly a Noun-substantive, nor the Participle, which is a Noun-adjective. They are *verbals;* being related to their respective verbs in respect of *the things they signify:* but not *verbs,* inasmuch as they differ entirely in their *mode of significa-*

it is either to be understood as the same in sense, (the difference of tense being regarded as a matter of grammatical convenience only;) or else, if the circumstance of time really do *modify the sense* of the whole proposition, so as to make the use of that tense an essential, then, this circumstance is to be regarded as a part of one of the terms: "*at that time,*" or some such expression, being understood. Sometimes the substantive verb is both copula and predicate; *i. e.* where existence only is predicated: *e. g.* Deus *est.*

tion. It is worth observing, that an Infinitive (though it often comes last in the sentence) is *never the predicate*, except when another Infinitive is the Subject: *e. g.*

"I hope to succeed:" *i. e.* "$\overbrace{\text{to succeed}}^{\text{subj.}}$ is $\overbrace{\text{what I hope}}^{\text{pred.}}$."

It is to be observed, also, that in English there are two infinitives, one in "*ing*,"* the same in sound and spelling as the participle present, from which, however, it should be carefully distinguished; *e. g.* "rising early is healthful," and "it is healthful to rise early," are equivalent. In this, and in many other cases, the English word IT serves as a *representative* of the subject when that is put last: *e. g.*

"It is $\overbrace{\text{to be hoped}}^{\text{pred.}}$ that $\overbrace{\text{we shall}}^{\text{sub.}}$ succeed."

An adjective (including participles) cannot, by itself, be made the subject of a proposition; but is often employed as a predicate: as "Crassus was rich;" though some choose to consider some substantive as understood in every such case, (*e. g.* rich man) and consequently do not reckon adjectives among Simple-terms; (*i. e.* words which are capable, singly, of being employed as terms.) This, however, is a question of no practical consequence.

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* Grammarians have produced much needless perplexity by speaking of the *participle in* "*ing*," being employed so and so; when it is manifest that that very employment of the word constitutes it, to all intents and purposes, an *infinitive* and not a participle.

Simple-terms.

Of Simple-terms, then, (which are what the first part of Logic treats of) there are many divisions;* of which, however, one will be sufficient for the present purpose; *viz.* into *singular* and *common;* because, though any term whatever may be a *subject,* none but a *common* term can be affirmatively *predicated* of *several* others.

Singular and common terms.

A singular term stands for *one individual,* as "Cæsar," "the Thames:" (these, it is plain, cannot be said [or predicated] *affirmatively,* of any thing but themselves.) A common term stands for several individuals: *i. e.* can be *applied* to any of them, as comprehending them in its *single signification;* as "man," "river," "great."† The notions expressed by these common terms, we are enabled to form by the faculty of *abstraction:* for by it, in contemplating any object (or objects,) we can attend exclusively to some particular circumstances belonging to it, [some certain parts of its nature as it were,] and quite withhold our attention from the rest. When, therefore, we are thus contemplating several individuals which *resemble* each other in some *part* of their nature, we can (by attending to *that part alone,* and not to those points in which they differ) assign them *one common name,* which will express or stand for them merely as far as they all *agree;* and which, of course, will be applicable to all or any of them; (which process is called *generalization*) **Generalization.** and each of these names is called a *common* term, from its belonging to them *all alike;* or a *predicable,* because it may be predicated affir- **Predicable.** matively of them, or of any one of them.

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* The usual divisions of words, however, into *univocal, equivocal,* and *analogous,* and into words of the *first* and *second intention,* are not, strictly speaking, divisions of *words,* but divisions of the *manner of employing* them; the *same* word may be employed either univocally, equivocally or analogously; either in the first intention or in the second. The ordinary logical treatises often occasion great perplexity to the learner, by not noticing this circumstance, but rather leading him to suppose the contrary.—See ch. iii. § 8.

† These individuals are called its *significates:* as are also the several species, of the genus which includes them.

Generalization (as has been remarked) implies abstraction, but it is not the same thing; for there may be abstraction without generalization: when we are speaking of an Individual, it is usually an abstract notion that we form; *e. g.* suppose we are speaking of the present King of France; he must actually *be* either at Paris or elsewhere; sitting, standing, or in some other posture; and in such and such a dress, *&c.* Yet many of these circumstances, (which are *separable* Accidents (vide § 7.) and consequently) which are regarded as *non-essential to the individual,* are quite disregarded by us; and we *abstract* from them what we consider as essential; thus forming an *abstract* notion of the Individual. Yet there is here no generalization.

§ 4.

Species.

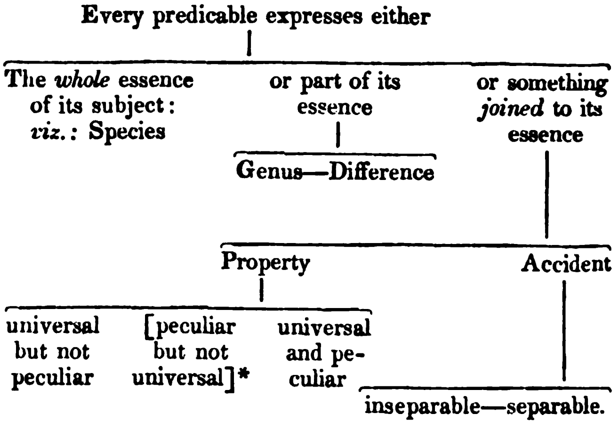
Genus.

Differentia.

Property.

Accident.

Whatever term can be affirmed of several things, must express either their *whole essence*, which is called the *Species;* or a *part* of their essence (*viz.* either the material part, which is called the *Genus*, or the *formal* and *distinguishing part*, which is called *Differentia*, or in common discourse, *characteristic*) or something *joined to the essence;* whether *necessarily* (*i. e.* to the *whole* species, or, in other words, *universally*, to every individual of it), which is called a *Property;* or *contingently* (*i. e.* to *some* individuals only of the species), which is an *Accident*.


Every predicable expresses either
The *whole* essence of its subject: *viz.:* Species
or part of its essence
or something *joined* to its essence
Genus—Difference
Property
Accident
universal but not peculiar
[peculiar but not universal]*
universal and peculiar
inseparable—separable.

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* And, consequently, not correctly called a property, as is remarked below; but inserted here as having been

It is evident, from what has been said, that the Genus and Difference put together make up the Species: *e. g.* "rational" and "animal" constitute "man;" so that, *in reality*, the Species contains the Genus; (*i. e.* implies it;) and when the Genus is called a *whole*, and is said to *contain* the Species, this is only a *metaphorical* expression, signifying that it *comprehends* the Species, in its own more *extensive* signification: *e. g.* if I predicate of Cæsar that he is an *animal*, I say the truth indeed, but not the *whole* truth; for he is *not only* an animal, but a man; so that "man," is a more *full and complete* expression than "animal;" which for the same reason is more *extensive*, as it contains, (or

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usually reckoned such by logical writers. They have also added a fourth kind of property; *viz.* that which is peculiar to a species, and belongs to every individual of it, but *not at every time.* But this is, in fact, a contradiction; since whatever does not *always* belong to a species, does not belong to it *universally*. It is through the ambiguity of words that they have fallen into this confusion of thought; *e. g.* the example commonly given is, "homini canescere," "to become grey" being, they say, (though it is not) *peculiar* to man, and belonging to *every* individual, though not *always*, but only in old age, *&c.* Now, if by "canescere" be meant the *very circumstance* of becoming grey, this manifestly does not belong to every man: if again it be meant to signify the *liability* to become grey hereafter, this does belong *always* to man. And the same in other instances. Indeed the very proprium fixed on by Aldrich, "risibility," is nearly parallel to the above. Man is "*always capable of laughing;*" but he is not "*capable of laughing always.*"

comprehensive, Species, which is the genus of that, *viz.* of "land-animal." Other Properties, as some logicians call them, are *peculiar* to a species, but do not belong to the whole of it: *e. g.* man *alone* can be a poet, but it is not *every* man that is so. These, however, are more commonly and more properly reckoned as *accidents.*

Accidents separable and inseparable.

For that is most properly called an Accident, which may be absent or present, the essence of the Species continuing the same; as, for a man to be "*walking,*" or a "*native of Paris:*" of these two examples, the former is what logicians call a *separable* Accident, because it may be separated from the *individual:* (*e. g.* he may sit down;) the latter is an *inseparable* Accident, being not separable from the individual, (*i. e.* he who is a native of Paris can never be otherwise;) "from the individual," I say, because *every accident* must be separable from the *species*, else it would be a *property.**

* This seems to me a clearer and more correct description of the two kinds of accident than the one given by Aldrich; *viz.* that a Separable Accident may be *actually* separated, and an Inseparable, only *in thought*, "ut Mantuanum esse, a Virgilio." For surely "to be the author of the Æneid" was another Inseparable Accident of the same individual; "to be a Roman citizen" another; and "to live in the days of Augustus" another: now can we *in thought* separate all these things from the essence of *that individual!* To do so would be to form the idea of a *different* individual. We can indeed conceive a *man*, and

Let it here be observed, that both the general name "Predicable," and each of the classes of Predicables, (*viz.* Genus, Species, *&c.*) are *relative; i. e.* we cannot say *what predicable* any term is, or whether it is any at all, unless it be specified *of what* it is to be predicated: *e. g.* the term "red" would be considered a *genus*, in relation to the terms "pink," "scarlet," *&c.* it might be regarded as the *differentia*, in relation to "red rose;"—as a *property* of "blood,"—as an *accident* of "a house," *&c.*

And universally, it is to be steadily kept in mind, that no "common terms" have, as the names of individuals have, any *real thing existing in nature* corresponding to them (τόδε τι, as Aristotle expresses it, though he has been represented as the champion of the opposite opinion: vide *Categ.* c. 3.), but that each of them is merely a name denoting a certain *inadequate notion* which our minds have formed of an Individual, and which, consequently, not including anything wherein that individual differs from certain others, is applicable equally well to all or any of them: thus "man" denotes no real thing (as the sect of the Realists maintained) distinct from each individual, but merely *any* man, viewed *inadequately, i. e.* so as to omit,

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one who might chance to bear the *name* of Virgil, without any of these Accidents; but then it would plainly not be the *same* man.

comprehensive. [illegible] to each that [illegible] term becomes as some logicians [illegible] several individuals species, but do not [illegible] several together: e. g. man [illegible] circumstance which man that is [illegible] and consider separately commonly and [illegible] the rest: so that the *dents.* [illegible] be referred to any of

[illegible] For that is [illegible] and the same Species which may be [illegible] our purpose. Thus the Species [illegible] purpose to class his cattle to be [illegible] and other possessions, these [illegible] *stock:*" the Naturalist, clans[illegible] classes them as "*qua-*be[illegible] would include wolves, si[illegible] the farmer would be a most h[illegible]: the Commissary, again, [illegible] corn, cheese, fish, *&c.* as [illegible] which is most essential in [illegible] subordinate in another.

§ 6.

[illegible] is so called because it is inca[illegible]: which is a metapho[illegible] to signify "the distinct (*i. e.* [illegible] enumeration of several things signi[illegible] common name." This operation [illegible] opposite to *generalization*, (which is [illegible] means of abstraction;) for as in [illegible] the *differences* by which seare distinguished, so as to call them *common name*, so, in Division, you Differences, so as to enumerate them *several particular* names. Thus, " mi- is said to be divided into " stones, ls," *&c.*; and metals again into " gold, n," *&c.* and these are called the Parts (or Members) of the division.

The rules for Division are three: 1st. each of the Parts, or any of them short of *all*, must *contain less* (*i. e.* have a narrower signification) than the thing divided. 2d. All the Parts together must be exactly equal to the thing divided; (therefore we must be careful to ascertain that the *summum genus* may be predicated of *every* term placed under it, and of nothing else.) 3d. The Parts or Members must be *opposed*; *i. e.* must not be contained in one another: *e. g.* if you were to divide " book " into " poetical, historical, folio, quarto, french, latin," *&c.* the members would be contained in each other; for a french book may be a quarto, and a quarto french, *&c.* You must be careful, therefore, to keep in mind the *principle of division* with which you set out: *e. g.* whether you begin dividing books according to their *matter*, their *language*, or their *size*, *&c.* all these being so many *cross-divisions*. And when anything is capable (as in the above instance) of being divided in several different ways, we are not to reckon one of these as the true, or real, or right one, without specifying what the object is which we have in view: for one mode of dividing may be the most suitable for one purpose, and another for another; as *e. g.* one of the above modes of dividing books would be the most suitable to a bookbinder; another in a philosophical, and the other in a philological view.

It must be carefully remembered, that the word "Division," as employed in Logic, is, as has been observed already, *metaphorical;* for to divide, means, originally and properly, to separate the component parts of anything; each of which is of course absolutely less than the whole: *e. g.* a tree (*i. e. any individual tree*) might be divided "physically," as it is called, into root, trunk, branches, leaves, *&c.* Now it cannot be said that a root or a leaf is a tree: whereas in a Logical Division each of the Members is, in reality, *more* than the whole: *e. g.* if you divide tree (*i. e. the genus, tree*) into oak, elm, ash, *&c.* we may say of the oak, or of any individual oak, that "it is a tree;" for by the very word "oak," we express not only the general notion of a tree, but *more, viz.* the peculiar characteristic (*i. e.* Difference) of that kind of tree.

It is plain, then, that it is *logically* only, *i. e.* in our mode of speaking, that a genus is said to contain (or rather, *comprehend*) its species; while metaphysically, *i. e.* in our conceptions, a species contains, *i. e. implies,* its genus.

Care must be taken not to confound a *physical* division with a *logical;* against which a caution is given under Rule 1, page 69.

§ 7.

Definition.

Definition is another metaphorical word, which literally signifies, "laying down a boundary;" and is used in logic to signify "an expression which explains any term, so as to *separate* it from everything else," as a boundary separates fields. A Nominal Definition (such as are those usually found in a *dictionary* of one's own language) explains only the *meaning of the term,* by giving some equivalent expression, which may happen to be better known. Thus you might define a "Term," that which forms one of the *extremes* or *boundaries* of a "proposition;" and a "Predicable," that which may be predicated; "decalogue," "ten commandments;" "telescope," an instrument for viewing distant objects, *&c.* A Real Definition is one which explains and unfolds the *nature of the thing;* and each of these kinds of definition is either *accidental* or *essential.* An *essential* Definition assigns (or lays down) the *constituent parts of the essence* (or nature). An *accidental* Definition (which is commonly called a *descrip-*

tion) assigns the circumstances *belonging* to the essence, *viz.* Properties and Accidents (*e. g.* causes, effects, *&c.*): thus, "man" may be *described* as "an animal that uses fire to dress his food," *&c.* [And here note, that in *describing a species*, you cannot mention anything which is strictly an *accident*, because, if it does not belong to the *whole* of the Species, it cannot define it: in describing an *individual*, on the contrary, you enumerate the *accidents*, because by them it is that one individual differs from another, and in this case you add *the species*: *e. g.* "Philip was a *man* of Macedon, who subdued Greece," *&c.* Individuals, it is evident, can be defined in this way alone.]

Two divisions of definition.

Lastly, the Essential Definition is divided into *physical* (*i. e.* natural) and *logical* or *metaphysical*: the *physical* Definition lays down the *real parts of the essence* which are actually separable; the *logical*, lays down the *ideal* parts of it, which cannot be separated except in *the mind*: thus, a plant would be defined *physically*, by enumerating the leaves, stalks, roots, *&c.* of which it is composed: *logically*, it would be defined "an organized Being, destitute of sensation;" the former of these expressions denoting the Genus, the latter the Difference; for a *logical definition* must always consist of the *genus* and *differentia*, which are the parts of which Logic considers everything as consisting, and which evidently are separable in the *mind alone*. Thus "man" is defined "a rational animal," *&c*. So also a "Proposition" might be defined, physically, "a subject and predicate combined by a copula:" the parts here enumerated being actually separable; but logically it would be defined "a sentence which affirms or denies;" and these two parts of the essence of a Proposition (which are the *genus* and *differentia* of it) can be separated in the mind only. And note, that the Difference is not always *one* quality, but is frequently *compounded* of several together, no one of which would alone suffice.

Definitions are divided into Nominal and Real, according to the *object accomplished* by them; whether to explain, merely, the meaning of the word, or the nature of the thing: on the other hand, they are divided into Accidental, Physical, and Logical, according to the *means employed* by each for accomplishing their respective objects; whether it be the enumeration of attributes, or of the physical, or the metaphysical parts of the essence. These, therefore, are evidently two cross-divisions. In this place we are concerned with *nominal* definitions only (except, indeed, of *logical* terms*) because all that is requisite for the purposes of *reasoning* (which is the proper province of Logic) is, that a term shall not be used in *different senses:* a *real* definition of anything belongs to the science or system which is employed about that thing. It is to be noted, that in mathematics the Nominal and Real Definition exactly coincide; the *meaning of the word,* and the *nature of the thing,* being exactly *the same.* This holds good also with respect to Logical terms, most Legal, and many Ethical terms.

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* The definitions of Logical Terms, as of all *terms of science* strictly so called, are at once Nominal and Real; the meaning of the word, and the nature of the thing, being in this case the very same. See Diss. ch. ii. § 3.

It is scarcely credible how much confusion has arisen from the ignorance of these distinctions which has prevailed among logical writers.*

The principal rules for definition are three; *viz.* 1st. The definition must be *adequate; i. e.* neither too extensive nor too narrow for the thing defined: *e. g.* to define "fish," "an animal that lives in the water," would be too *ex-*

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* In ch. ii. § 3 of the concluding dissertation, the doctrine here laid down will be more fully developed.

Aldrich, having given as an instance of a Nominal Definition the absurd one of "homo, qui ex humo," has led some to conclude that the Nominal Definition must be founded on the *etymology;* or at least that such was his meaning; but that it was not, is sufficiently plain from the circumstance that Wallis (from whose work his is almost entirely abridged) expressly says the contrary. Be this as it may, however, it is plain that the etymology of a term has nothing to do with any logical consideration of it. See note to § 8. of ch. iii.

tensive, because many insects, *&c.* live in the water; to define it, "an animal that has an air-bladder," would be too *narrow;* because many fish are without any.

2d. The definition must be in itself plainer than the thing defined, else it would not *explain it:* I say, "in itself," (*i. e.* generally) because, to some particular person, the term defined may happen to be even more familiar and better understood, than the language of the definition.

3d. It must be couched in a *convenient number of appropriate* words (if such can be found suitable for the purpose): for *figurative* words (which are opposed to appropriate) are apt to produce ambiguity or indistinctness; too great *brevity* may occasion *obscurity;* and too great *prolixity, confusion.*

Part II.—*Of Propositions.*

§ 1.

The second part of Logic treats of the *proposition;* which is, "*Judgment expressed in words.*"

Definition of proposition.

A Proposition is defined logically "*a sentence indicative,*" *i. e.* affirming or denying; (this excludes *commands* and *uestions.)* "Sentence" being the *genus,* and "Indicative" the *difference,* this definition expresses the whole essence; and it relates entirely to the *words* of a proposition. With regard to the *matter,* its property is, to be *true* or *false.* Hence it must not be *ambiguous* (for that which has more than one *meaning,* is in reality *several* propositions), nor *imperfect,* nor *ungrammatical,* for such an expression has no meaning at all.

Divisions of propositions.

Substance.

Since the *substance* (*i. e. genus,* or material part) of a Proposition is, that it is a *sentence;* and since every *sentence* (whether it be a *proposition* or not) may be expressed either *absolutely,** or under an *hypothesis,*† on this we found the division of propositions according to their *substance; viz.* into *categorical* and *hypothetical.* And as genus is said to be *predicated in quid* (what), it is by the members of this division that we answer the question, *what* is this proposition? (*quæ* est propositio.) Answer, Categorical or Hypothetical.

Categorical propositions are subdivided into *pure,* which asserts *simply* or *purely,* that the subject does or does not agree with the predicate, and *modal,* which expresses in what *mode* (or manner) it agrees; *e. g.* " an intemperate man will be sickly;" " Brutus killed Cæsar;" are *pure.* " An intemperate man will *probably* be sickly;" " Brutus killed Cæsar *justly*;" are *modal.* At present we speak only of *pure categorical* propositions.

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* As, "Cæsar deserved death;" "did Cæsar deserve death?"

† As, "if Cæsar was a tyrant, what did he deserve?" "Was Cæsar a hero or a villain?" "If Cæsar was a tyrant, he deserved death;" "He was either a hero or a villain."

It being the *differentia* of a *proposition* that it *affirms or denies,* and its *property* to be *true or false;* and Differentia being predicated in *quale quid,* Property in *quale,* we hence form another division of propositions, *viz.* according to their *quality,* into *Affirmative,* and *Negative,* Quality. (which is the *quality of the expression,* and therefore, in Logic, *essential*) and into *True* and *False* (which is the quality of the *matter,* and therefore *accidental.*) An Affirmative proposition is one whose *copula* is affirmative, as " birds fly;" "not to advance is to go back;" a Negative proposition is one whose *copula* is negative, as " man is not perfect;" "no miser is happy."

Another division of propositions is according Quantity. to their *quantity* (or extent:) if the predicate is said of the *whole* of the subject, the proposition is *Universal:* if of a *part* of it only, the proposition is *Particular* (or partial;) *e. g.* " England is an island;" " all tyrants are miserable;" " no miser is rich;" are *Universal* propositions, and their subjects are therefore said to be *distributed*, being understood to stand, each, for *the whole* of its Significates: but, "*some* islands are fertile;" "all tyrants are not assassinated;" are *Particular*, and their subjects, consequently, not *distributed*, being taken to stand for a part only of their Significates.

As every proposition must be either *Affirmative* or *Negative*, and must also be either *universal* or *particular*, we reckon, in all, four kinds of pure categorical propositions, (*i. e.* considered as to their quantity and quality *both*;) *viz.* Universal Affirmative, whose symbol (used for brevity) is *A*; Universal Negative, *E*; Particular Affirmative, *I*; Particular Negative, *O*.

§ 2.

When the subject of a proposition is a Common-term, the *universal signs* ("all, no, every") are used to indicate that it is distributed, (and the proposition consequently is universal;) the *particular signs* ("some, *&c.*") the contrary; should there be *no sign* at all to the common term, the quantity of the proposition (which is called an *Indefinite* proposition) is ascertained by the *matter*; *i. e.* the nature of the connexion between the extremes: which is either Necessary, Impossible, or Contingent. In necessary and in impossible matter, an Indefinite is *understood as a universal*: *e. g.* "birds have

Indefinites.

wings;" *i. e. all:* "birds are not quadrupeds;" *i. e. none:* in contingent matter, (*i. e.* where the terms partly (*i. e.* sometimes) agree, and partly not) an Indefinite is understood as a particular; *e. g.* "food is necessary to life;" *i. e. some* food; "birds sing;" *i. e. some* do; "birds are not carnivorous;" *i. e. some* are not, or, all are not.*

Singular.

As for *singular* propositions, (*viz.* those whose subject is either a *proper name,* or a common term with a *singular* sign) they are reckoned as Universals, (see ch. iv. § 2.) because in them we speak of the *whole* of the subject; *e. g.* when we say, "Brutus was a Roman," we mean, the *whole* of Brutus: this is the general rule; but some singular propositions may fairly be reckoned *particular; i. e.* when some qualifying word is inserted, which indicates that you are not speaking of the *whole* of the subject; *e. g.* "Cæsar was not *wholly* a tyrant;" "this man is *occasionally* intemperate;" "non *omnis* moriar."

It is evident, that the *subject* is *distributed* in every universal proposition, and never in a

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* It is very perplexing to the learner, and needlessly so, to reckon *indefinites* as one class of propositions in respect of quantity. They must *be* either universal or particular, though it is not *declared* which. Such a mode of classification resembles that of some grammarians, who, among the Genders, enumerate the *doubtful gender!*

particular; (that being the very difference between universal and particular propositions:) but the distribution or non-distribution of the *predicate*, depends (not on the *quantity*, but) on the *quality*, of the proposition; for, if any *part of the predicate* agrees with the subject, it must be *affirmed* and not *denied* of the subject; therefore, for an affirmative proposition to be true, it is *sufficient* that some *part of the predicate* agree with the subject; and (for the same reason) for a negative to be true, it is necessary that the *whole* of the predicate should *disagree* with the subject: *e. g.* it is true that "learning is useful," though the whole of the term "useful" does not agree with the term "learning," (for many things are useful besides learning,) but "no vice is useful," would be false, if any part of the term "useful" agreed with the term "vice;" (*i. e.* if you could find any one useful thing which was a vice.) The two practical rules then to be observed respecting distribution, are,

1st. All universal propositions (and no particular) distribute the *subject*.

2d. All *negative* (and no affirmative) the predicate.

It *may happen* indeed, that the whole of the predicate in an affirmative may agree with the subject; *e. g.* it is equally true, that "all men are rational animals;" and "all rational animals are men:" but this is merely *accidental*, and is not at all *implied* in the *form of expression*, which alone is regarded in Logic.

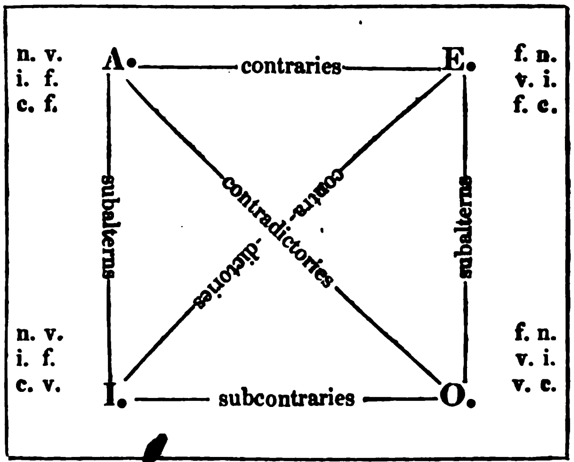
Of Opposition.

§ 3.

Two propositions are said to be *opposed* to each other, when, having the same subject and predicate, they differ, in *quantity*, or *quality*, or *both*. It is evident, that with any given subject and predicate, you may state four distinct propositions, *viz*. A, E, I, and O; any two of which are said to be *opposed*; hence there are four different kinds of opposition, *viz*. 1st. the two universals (A and E) are called *contraries* to each other; 2d. the two particular, (I and O) *subcontraries*; 3d. A and I, or E and O, *subalterns*; 4th. A and O, or E and I, *contradictories*.

Contraries. Subcontraries. Contradictories. Subalterns.

As it is evident, that the truth or falsity of any proposition (its quantity and quality being known) must depend on the *matter* of it, we must bear in mind, that, "*in necessary matter all affirmatives are true, and negatives false; in impossible matter, vice versâ; in contingent matter, all universals false, and particulars true;*" (*e. g.* "*all* islands (or, *some* islands) are surrounded by water," must be true, because the *matter is necessary:* to say, "*no* islands, or some —*not*, *&c.*" would have been false: again, "*some* islands are fertile;" "*some* are not fertile," are both true, because it is Contingent Matter: put "*all*" or "no," instead of "*some*," and the propositions will be false.) Hence it will be evident, that Contraries will be *both false* in Contingent matter, but never *both true*: Subcontraries, *both true* in Contingent matter, but never *both false*: Contradictories, always *one true* and *the other false*, *&c.* with other observations, which will be immediately made on viewing the scheme; in which the four propositions are denoted by their symbols, the different kinds of *matter* by the initials, n, i, c, and the *truth* or *falsity* of each proposition in each matter, by the letter v. for (*verum*) true, f. for (*falsum*) false.



By a careful study of this scheme, bearing in mind, and applying the above rule concerning *matter*, the learner will easily elicit all the maxims relating to opposition; as that, in the Subalterns, the truth of the particular (which is called the *subalternate*) follows from the truth of the universal (*subalternans*), and the falsity of the universal from the falsity of the particular: that Subalterns differ in *quantity alone;* Contraries, and also Subcontraries, in *quality alone;* Contradictories, in both: and hence, that if any proposition is known to be true, we infer that its Contradictory is false; if false, its Contradictory true, *&c.*

Of Conversion.

§ 4.

A proposition is said to be *converted* when its terms are *transposed:* when nothing more is done, this is called *simple* conversion. No conversion is employed for any logical purpose, unless it be *illative; i. e. when the truth of the Converse follows from* the truth of the Exposita, (or proposition given;) *e. g.*

> "No virtuous man is a rebel, *therefore*
> No rebel is a virtuous man."
>
> "Some boasters are cowards, *therefore*
> Some cowards are boasters."

Illative conversion.

Conversion can then only be illative when *no term is distributed in the Converse, which was not distributed in the Exposita:* (for if that be is always the case; for there the terms being *exactly equivalent* (or, as they are called, *convertible terms*) it is no matter which is made the subject, and which the predicate, *e. g.* "a good government is that which has the happiness of the governed for its object;" if this be a *right definition*, it will follow that "a government which has the happiness of the governed for its object is a good one." Most propositions in mathematics are of this description: *e. g.*

"All equilateral triangles are equiangular;" and
"All equiangular triangles are equilateral."

Part III.—*Of Arguments.*

§ 1.

The third operation of the mind, *viz.* *reasoning*, (or discourse) expressed in words, is *argument;* and an argument stated *at full length*, and in its *regular form*, is called a *syllogism:* the third part of Logic therefore treats of the *syllogism*. Every Argument* consists of two parts; that which *is proved;* and that *by means of which* it is proved: the former is called, *before* it is proved, the *question; when proved*, the *conclusion* (or *inference;*) that which is used to prove it, if stated *last* (as is often done in *common discourse,*) is called the *reason,* and is introduced by "*because,*" or some other *causal* conjunction; (*e. g.* "Cæsar deserved death, *because* he was a tyrant, and all tyrants deserve death.") If the conclusion be stated *last* (which is the strict *logical form,* to which all Reasoning may be reduced) then that which is employed to prove it is called the *premises*;* and the Conclusion is then introduced by some *illative* conjunction, as "therefore" *e. g.*

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* I mean, in the strict technical sense; for in popular use the word Argument is often employed to denote the latter of these two parts alone: *e. g.* "this is an *Argument* to prove so and so;" "this conclusion is established by the *Argument*:" *i. e.* Premises.—See Appendix, No. I. Art. ARGUMENT.

> "All tyrants deserve death;
> Cæsar was a tyrant;
> *therefore* he deserved death."†

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* Both the premises together are sometimes called the *antecedent.*

† It may be observed that the definition here given of an *argument* is in the common treatises of logic laid down as the definition of a *syllogism;* a word which I have confined to a more restricted sense. There cannot evidently be any *argument,* whether regularly or irregularly expressed, to which the definition given by Aldrich, for instance, would not apply; so that he appears to employ "syllogism" as synonymous with "argument." But besides that it is clearer and more convenient, when we have these two words at hand, to employ them in the two senses respectively which we want to express, the truth is, that in so doing I have actually conformed to Aldrich's *practice:* for he generally, if not always, employs the term Syllogism in the very sense to which I have confined it: *viz.* to denote an argument *stated in regular logical form;* as, *e. g.* in a part of his work (omitted in the late editions) in which he is objecting to a certain pretended syllogism in the work of another writer, he says, "valet certe *argu-*

Definition of Argument.

Since, then, an argument is an expression in which "*from something laid down and granted as true* (*i. e. the Premises*) *something else* (*i. e. the Conclusion*) *beyond this must be admitted to be true, as following necessarily* (*or resulting*) *from the other;* and since Logic is wholly concerned in the use of language, it follows that a Syllogism (which is an argument stated in a regular logical form) must be "an argument so expressed, that the conclusiveness of it is manifest from *the mere force of the expression,*" *i. e.* without considering the *meaning of the terms: e. g.* in this syllogism, "Y is X, Z is Y, therefore Z is X:" the conclusion is inevitable, whatever terms X, Y, and Z, respectively are understood to stand for. And to this form all legitimate arguments may ultimately be brought.

Definition of Syllogism.

§ 2.

The rule or axiom (commonly called "*dictum de omni et nullo*") by which Aristotle proves the validity of this argument, is this: "*whatever is predicated of a term distributed, whether affirma-*

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mentum; syllogismus tamen est falsissimus," &c. Now (waiving the exception that might be taken at this use of "*falsissimus,*" nothing being, strictly, true or false, but a *proposition*) it is plain that he limits the word "syllogism" to the sense in which it is here defined, and is consequently inconsistent with his own definition of it.

tively or negatively, may be predicated in like manner of everything contained under it." Thus, in the examples above, X is predicated of Y distributed, and Z is contained under Y (*i. e.* is its subject;) therefore X is predicated of Z: so "all tyrants," *&c.* (p. 87.) This rule may be *ultimately* applied to all arguments; (and their validity ultimately rests on their conformity thereto) but it cannot be *directly and immediately* applied to *all* even of pure *categorical* syllogisms; for the sake of brevity, therefore, some other axioms are commonly applied in practice, to avoid the occasional tediousness of reducing all syllogisms to that form in which Aristotle's *dictum* is applicable.*

We will speak first of pure categorical syllogisms; and the axioms or canons by which their validity is to be proved: *viz.* first, *if two terms agree with one and the same third, they agree with each other:* secondly, *if one term agrees and another disagrees with one and the same third, these two disagree with each other.* On the former of these canons rests the validity of *affirmative* conclusions; on the latter, of *negative:* for no categorical syllogism can be faulty which does not violate these canons; none correct which does: hence on these two canons are built the rules or cautions which are to be observed with respect to syllogisms, for the purpose of ascertaining whether those canons have been strictly observed or not.

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* Instead of following Aldrich's arrangement, in laying down first the canons which apply to *all* the figures of categorical syllogisms, and then going back to the "dictum of Aristotle" which applies to only one of them, I have pursued what appears a simpler and more philosophical arrangement, and more likely to impress on the learner's mind a just view of the science; *viz.* 1st. to give the rule (Aristotle's dictum) which applies to the most clearly and regularly constructed argument, the Syllogism in the first figure, to which all reasoning may be reduced; then the canons applicable to all categoricals; then, those belonging to the hypotheticals; and lastly to treat of the Sorites; which is improperly placed by Aldrich *before* the hypotheticals. By this plan the province of strict Logic is extended as far as it can be; every kind of argument which is of a *syllogistic* character, and accordingly directly cognizable by the rules of logic, being enumerated in natural order.

1st. *Every syllogism has three, and only three terms: viz.* the two terms (or *extremes,* as they are commonly called) of the Conclusion (or question) whereof, 1st, the *subject* is called the *minor term;* 2d, the *predicate,* the *major;* and 3d, the *middle term,* with which each of them is separately compared, in order to judge of their agreement or disagreement with each other. If therefore there were *two* middle terms, the *extremes,* (*or terms of the conclusion*) not being both compared to the *same,* could not be conclusively compared to each other.

2d. *Every syllogism has three, and only three propositions; viz.* 1st, the *major premiss* (in which the *major term* is compared with the *middle*:) 2d, the *minor premiss* (in which the *minor term* is compared with the *middle*;) and 3d, the Conclusion, in which the Minor term is compared with the Major.

3d. Note, that *if the middle term is ambiguous, there are in reality two middle terms, in sense,* though but one in *sound*. An ambiguous middle term is either an *equivocal* term, used in different senses in the two premises; (*e. g.*

"*Light* is contrary to darkness;
Feathers are *light*; therefore
Feathers are contrary to darkness.")

Or a term *not distributed*: for as it is then used to stand for a *part* only of its *significates*, it may happen that one of the extremes may have been compared with *one part* of it, and the other with another part of it; *e. g.*

"White is a colour,
Black is a colour; therefore
Black is white."——Again,
"Some animals are beasts,
Some animals are birds; therefore
Some birds are beasts."

The middle term therefore must be distributed once, at least, in the premises; (*i. e.* by being the subject of an universal, or predicate of a negative, part ii. § 2. p. 78,) and once is sufficient; since if one extreme has been compared to a *part* of the middle term, and another to the *whole* of it, they must have been both compared to the *same*.

4th. *No term must be distributed in the conclusion which was not distributed in one of the premises;* for that (which is called an *illicit* process, either of the Major or the Minor term) would be to employ the *whole* of a term in the Conclusion, when you had employed only a *part* of it in the Premiss; and thus, in reality, to introduce a fourth term; *e. g.*

"All quadrupeds are animals,
A bird is not a quadruped; therefore
It is not an animal."—Illicit process of the major.

5th. *From negative premises you can infer nothing*. For in them the Middle is pronounced *to disagree with both extremes;* not to *agree with both;* or to agree with one, and *disagree* with the other; therefore they cannot be compared together; *e. g.*

"A fish is not a quadruped;"
"A bird is not a quadruped," proves nothing.

6th. *If one premiss be negative, the conclusion must be negative;* for in that premiss the middle term is pronounced to disagree with one of the extremes, and in the other premiss (which of course is affirmative by the preceding rule) to agree with the other extreme; therefore the extremes disagreeing with each other, the conclusion is negative. In the same manner it may be shown, that *to prove a negative conclusion one of the Premises must be a negative.*

* By these six rules all Syllogisms are to be tried; and from them it will be evident; 1st, that *nothing can be proved from two particular Premises;* (for you will then have *either the middle Term undistributed,* or an *illicit process: e. g.*

> "Some animals are sagacious;
> Some beasts are not sagacious;
> Some beasts are not animals.")

And, for the same reason, 2ndly, that if one of the Premises be particular, the Conclusion must be particular; *e. g.*

> "All who fight bravely deserve reward;
> Some soldiers fight bravely;" you can only infer that
> "Some soldiers deserve reward:"

for to infer a universal Conclusion, would be an illicit process of the minor. But from two universal Premises you cannot always infer a universal Conclusion ; *e. g.*

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* Aldrich has given twelve rules, which I found might more conveniently be reduced to six. No syllogism can be faulty which violates none of these six rules. It is much less perplexing to a learner not to lay down as a distinct rule, that, *e. g.* against *particular premises;* which is properly a *result* of the foregoing; since a syllogism with two particular premises would offend against either R. 3. or R. 4.

> " All gold is precious,
> All gold is a mineral ; therefore
> *Some* mineral is precious."*

And even when we *can* infer a universal, we are always *at liberty* to infer a particular ; since what is predicated of *all* may *of course be* predicated of some.

Of Moods.

§ 3.

When we designate the three propositions of a syllogism in their order, according to their respective quantity and quality (*i. e.* their *symbols*) we are said to determine the *mood* of the syllogism ; *e. g.* the example just above, " all gold, *&c.*" is in the mood A, A, I. As there are four kinds of propositions, and three propositions in each syllogism, all the possible ways of combining these four, (A, E, I, O,) by threes, are sixty-four. For any one of these four may be the major premiss, each of these four majors may have four different minors, and of these sixteen pairs of premises, each may have four different conclusions. 4 × 4 (=16) × 4 = 64. This is a mere arithmetical calculation of the moods, without any regard to the logical rules: for many of these moods are inadmissible in practice, from violating some of those rules; *e. g.* the mood E, E, E, must be rejected, as having *negative premises;* I, O, O, for *particular premises;* and many others for the same faults: to which must be added I, E, O, for an illicit process of the Major, in every figure. By examination then of all, it will be found that, of the sixty-four, there remain but eleven moods which can be used in a legitimate syllogism, *viz.* A, A, A, A, A, I, A, E, E, A, E, O, A, I, I, A, O, O, E, A, E, E, A, O, E, I, O, I, A, I, O, A, O.

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* Aldrich, by a strange oversight, has so expressed himself as to imply (though he could hardly mean it) that we always *may*, if we will, infer a universal conclusion from two universal premises.

Of Figure.

§ 4.

The Figure of a syllogism consists in the situation of the Middle term with respect to the Extremes of the Conclusion, (*i. e. the major and minor term.*) When the Middle term is made the *subject of the major premiss, and the predicate of the minor*, that is called the first Figure; (which is far the most natural and clear of all, as to this alone Aristotle's Dictum may be *at once* applied.) In the second Figure the Middle term is the *predicate* of *both* premises: in the third, *the subject* of both: in the fourth, the *predicate of the Major premiss, and the subject of the Minor*. (This is the most awkward and unnatural of all, being the very reverse of the first.) Note, that the *proper order* is to place the Major premiss *first*, and the Minor *second;* but this does not *constitute* the Major and Minor premises: for that premiss (wherever placed) is the Major, which *contains the major term,* and the Minor, the Minor (v. R. 2. p. 90.) Each of the allowable Moods mentioned above will not be allowable in every Figure; since it may violate some of the foregoing rules, in one Figure, though not in another: *e. g.* I, A, I, is an allowable mood in the third Figure; but in the first it would have an *undistributed middle.** So A, E, E, would in the first Figure have an *illicit process of the major,* but is allowable in the second: and A, A, A, which in the first Figure is allowable, would in the third have an *illicit process of the minor:* all which may be ascertained by trying the different Moods in each figure, as per scheme.

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* *e. g.* Some $\overset{\overset{\frown}{\text{I}}}{\text{restraint}}$ is salutary: all $\overset{\overset{\frown}{\text{A}}}{\text{restraint}}$ is unpleasant: something $\overset{\overset{\frown}{\text{I}}}{\text{unpleasant}}$ is salutary. Again: Some $\overset{\text{I}}{\text{herbs}}$ are fit for food: $\overset{\text{A}}{\text{nightshade}}$ is an herb: some $\overset{\text{I}}{\text{nightshade}}$ is fit for food.

Let X represent the major term, Z the minor, Y the middle.

1st Fig.	2d Fig.	3d Fig.	4th Fig.
Y, X,	X, Y,	Y, X,	X, Y,
Z, Y,	Z, Y,	Y, Z,	Y, Z,
Z, X,	Z, X,	Z, X,	Z, X.

The Terms alone being here stated, the *quantity and quality* of each Proposition (and consequently the Mood of the whole Syllogism) is left to be filled up: (*i. e.* between Y and X, we may place either a negative or affirmative Copula: and we may prefix either a *universal* or *particular* sign to Y.) By applying the Moods then to each Figure, it will be found that each Figure will admit six Moods only, as not violating the rules against *undistributed middle,* and against *illicit process:* and of the Moods so admitted, several (though valid) are *useless,* as having a particular Conclusion, when a *universal might have* been drawn; *e. g.* A, A, I, in the first Figure,

> "All human creatures are entitled to liberty;
> All slaves are human creatures; therefore
> *Some* slaves are entitled to liberty."

Of the twenty-four Moods, then, (six in each Figure) five are for this reason neglected: for the remaining nineteen, logicians have devised names to distinguish both the Mood itself, and the Figure in which it is found; since when one Mood (*i. e. one in itself,* without regard to

Figure) occurs in two different Figures, (as E, A, E, in the first and second) the mere letters denoting the *mood* would not inform us concerning the *figure*. In these names, then, the *three vowels* denote the propositions of which the Syllogism is composed: the consonants (besides their other uses, of which hereafter) serve to keep in mind the Figure of the Syllogism.

Fig. 1. bArbArA, cElArEnt, dArII, fErIOque prioris.
Fig. 2. cEsArE, cAmEstrEs, fEstInO, bArOkO,* secundæ.
Fig. 3. tertia, dArAptI, dIsAmIs, dAtIsI, fElAptOn, bOkArdO,† fErIsO, habet: quarta insuper addit.
Fig. 4. brAmAntIp, cAmEnEs, dImArIs, fEsApo, frEsIsOn.

By a careful study of these mnemonic lines (which must be committed to memory) you will perceive that A can only be proved in the first Figure, in which also every other Proposition may be proved; that the second proves only *negatives*; the third only *particulars, &c.*; with many other such observations, which will readily be made, (on trial of several Syllogisms, in different Moods) and the reasons for which will be found in the foregoing rules: *e. g.* to show why the second Figure has only negative

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* Or, Fakoro, see § 7.

† Or, Dokamo, see § 7.

Conclusions, we have only to consider, that in it the middle term being the *predicate in both premises*, would not be *distributed* unless one premiss were *negative;* (v. R. 2. p. 69.) therefore the Conclusion must be negative also, by R. 6. p. 92. One Mood in each figure may suffice in this place by way of example:

First, *Barbara, viz.* (bAr.) Every Y is X; (bA) every Z is Y; therefore (rA) every Z is X: *e. g.* let the major term (which is represented by X) be "one who possesses all virtue;" the minor term (Z) "every man who possesses one virtue;" and the middle term (Y) "every one who possesses prudence;" and you will have the celebrated argument of Aristotle, *Eth.* sixth book, to prove that the virtues are inseparable; *viz.*

> "He who possesses prudence, possesses all virtue;
> He who possesses one virtue, must possess prudence;
> therefore
> He who possesses one, possesses all."

Second, *Camestres,* (cAm) every X is Y; (Es) no Z is Y; (trES) no Z is X. Let the major term (X) be "true philosophers," the minor (Z) "the Epicureans;" the middle (Y) "reckoning virtue a good in itself;" and this will be part of the reasoning of Cicero. *Off.* book first and third, against the Epicureans.

Third, *Darapti, viz.* (*dA*) every Y is X;

(*rAp*) every Y is Z, therefore (*tI*) Some Z is X; *e. g.*

> "Prudence has for its object the benefit of individuals; but prudence is a virtue; therefore, some virtue has for its object the benefit of the individual,"

is part of Adam Smith's reasoning (*Moral Sentiments*) against Hutcheson and others, who placed all virtue in benevolence.

Fourth, Camenes, *viz.* (*cAm*) every X is Y (*En,*) no Y is Z; therefore (Es,) no Z is X; *e. g.*

> "Whatever is expedient, is conformable to nature;
> Whatever is conformable to nature, is not hurtful to society; therefore
> What is hurtful to society is never expedient,"

is part of Cicero's argument in *Off.* third book; but it is an inverted and clumsy way of stating what would much more naturally fall into the first Figure; for if you examine the Propositions of a Syllogism in the fourth Figure, *beginning* at the *Conclusion,* you will see that as the major term is predicated of the minor, so is the minor of the middle, and that again of the major; so that the major appears to be merely *predicated of itself.* Hence the five Moods in this Figure are seldom or never used; some one of the fourteen (*moods with names*) in the first three Figures, being the forms into which all arguments may most readily be thrown; but of these, the four in the first Figure are the clearest and most natural; as to them Aristotle's Dictum will *immediately* apply. And as it is on this Dictum that all Reasoning *ultimately* depends, so all arguments may be somehow or other brought into some one of these four Moods; and a Syllogism is, in that case, said to be *reduced:* (*i. e. to the first figure.*) These four are called the *perfect* moods, and all the rest *imperfect.*

Ostensive Reduction.

§ 5.

In reducing a Syllogism, we are not, of course, allowed to introduce any new Term or Proposition, having nothing granted but the truth of the Premises; but these Premises are allowed to be *illatively converted* (because the truth of any Proposition *implies* that of its illative converse) *or transposed:* by taking advantage of this liberty, where there is need, we deduce (in Figure 1st,) from the Premises originally given, either the *very same Conclusion* as the original one, or another from which the *original Conclusion* follows by illative conversion; *e. g. Darapti.*

"All wits are dreaded;
All wits are admired;
Some who are admired are dreaded."

Into *Darii*, by converting by limitation (*per accidens*) the minor Premiss.

> "All wits are dreaded;
> Some who are admired are wits; therefore
> Some who are admired are dreaded."

Camestres.

> "All true philosophers account virtue a good in itself;
> The advocates of pleasure do not account, &c.
> Therefore they are not true philosophers."

Reduced to *Celarent*, by simply converting the minor, and then transposing the Premises.

> "Those who account virtue a good in itself, are not advocates of pleasure;
> All true philosophers account virtue, &c.; therefore
> No true philosophers are advocates of pleasure."

This Conclusion may be *illatively converted* into the original one.

Baroko;* *e. g.*

> "Every true patriot is a friend to religion;
> Some great statesmen are not friends to religion;
> Some great statesmen are not true patriots."

To *Ferio*, by converting the major *by negation* (contraposition), vide Ch. II. § 4.

> He who is not a friend to religion, is not a true patriot;
> Some great statesmen, &c.

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* Or Fakoro.

and the rest of the Syllogism remains the same: only that the minor Premiss must be considered as affirmative, because you take "not-a-friend-to-religion," as the middle Term. In the same manner *Bokardo** to *Darii*; *e. g.*

> "Some slaves are not discontented;
> All slaves are wronged; therefore
> Some who are wronged are not discontented."

Convert the major by negation (contraposition) and then transpose them; the Conclusion will be the *converse by negation of the original one,* which therefore may be inferred from it; *e. g.*

> "All slaves are wronged;
> Some who are not discontented are slaves;
> Some who are not discontented are wronged."

In these ways (by what is called *Ostensive Reduction,* because you prove, in the first figure, either the *very same* Conclusion as before, or one *which implies it*) all the imperfect Moods may be reduced to the four perfect ones. But there is also another way, called

Reductio ad impossibile.

§ 6.

By which we prove (in the first figure) not directly that the original Conclusion is *true,* but that it *cannot be false; i. e.* that an absurdity would follow from the supposition of its being false; *e. g.*

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* Or Dokamo.

" All true patriots are friends to religion;
Some great statesmen are not friends to religion;
Some great statesmen are not true patriots."

If this Conclusion be not true, its contradictory must be true; *viz.*

" All great statesmen are true patriots."

Let this then be assumed, in the place of the minor Premiss of the original Syllogism, and a false conclusion will be proved; *e. g.* bAr.

" All true patriots are friends to religion;
bA, All great statesmen are true patriots;
rA, *All great statesmen are friends to religion:*"

for as this Conclusion is the contradictory of the original minor Premiss, it must be false, since the Premises are always supposed to be granted; therefore one of the *Premises* (by which it has been correctly proved) must be false also; but the major Premiss (being one of those originally granted) is *true;* therefore the *falsity must be in the minor Premiss;* which is the *contradictory* of the original Conclusion; therefore the original Conclusion must be true. This is the *indirect* mode of Reasoning.

§ 7.

This kind of Reduction is seldom employed but for *Baroko* and *Bokardo*, which are thus reduced by those who confine themselves to *simple* Conversion, and Conversion by limitation, (*per accidens;*) and they framed the names of their Moods, with a view to point out the manner in which each is to be reduced; *viz.* B, C, D, F, which are the initial letters of all the Moods, indicate to which Mood of the first figure (*Barbara, Celarent, Darii,* and *Ferio*) each of the others is to be reduced: *m* indicates that the Premises are to be *transposed; s* and *p,* that the Proposition denoted by the vowel immediately preceding, is to be *converted; s,* simply, *p, per accidens,* (by limitation:) thus, in *Camestres,* (see example, p. 99,) the *C* indicates that it must be reduced to *Celarent;* the two *ss,* that the minor Premiss and Conclusion must be *converted simply;* the *m,* that the Premises must be *transposed. K* (which indicates the reduction *ad impossibile*) is a sign that the Proposition, denoted by the vowel immediately before it, must be left out, and the contradictory of the Conclusion substituted; *viz.* for the *minor* Premiss in *Baroko,* and the *major* in *Bokardo.* But it has been already shown, that the Conversion by contraposition (by negation) will enable us to reduce these two Moods, *ostensively.*[*]

Supplement to Part III.—*Of Modal Syllogisms, and of all Arguments besides regular and pure Categorical Syllogisms.*

Of Modals.

§ 1.

Hitherto we have treated of *pure* categorical Propositions, and the Syllogisms composed of such. A *Modal* Proposition may be stated as a *pure* one, by *attaching the Mode to one of the Terms:* and the Proposition will in all respects fall under the foregoing rules: *e. g.* "John killed Thomas *wilfully and maliciously;*" here the Mode is to be regarded as part of the Predicate. "It is *probable* that all knowledge is useful;" "probably useful" is here the Predicate. But when the Mode is only used to express the necessary, contingent, or impossible connection of the Terms, it may as well be attached to the *Subject: e. g.* "man is *necessarily* mortal;" is the same as "*all* men are mortal:"

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[*] If any one should choose that the names of these moods should indicate this, he might make K the index of conversion by negation; and then the names would be, by a slight change, *Fakoro* and *Dokamo.*

"injustice is *in no case* expedient" corresponds to "no injustice is expedient:" and "this man is *occasionally* intemperate," has the force of a *particular:* (vide Part II. § 2. p. 78.) It is thus, and thus only, that two singular Propositions may be contradictories; *e. g.* "this man is *never* intemperate," will be the *contradictory* of the foregoing. Indeed every sign (of universality or particularity) may be considered as a *Mode*. Since, however, in all Modal Propositions, you assert that the dictum (*i. e.* the *assertion itself*) and the *Mode*, agree together, or disagree, so, in some cases, this may be the most convenient way of stating a Modal, purely: *e. g.* "$\overbrace{\text{It}}^{\text{subj.}}$ $\overbrace{\textit{is}}^{\text{cop.}}$ $\overbrace{\textit{impossible}}^{\text{pred.}}$ $\overbrace{\text{that all men}}^{\text{subject.}}$ $\overbrace{\text{should be virtuous.}}^{\text{subject.}}$" Such is a proposition of St. Paul's: "$\overbrace{\text{This}}^{\text{subj.}}$ $\overbrace{\text{is}}^{\text{cop.}}$ $\overbrace{\text{a faithful saying, \&c.}}^{\text{pred.}}$ $\overbrace{\text{that Jesus Christ came into the world to save}}^{\text{subject.}}$ $\overbrace{\text{sinners.}}^{\text{subj.}}$" In these cases one of your *Terms* (the subject) is itself *an entire Proposition*. Thus much for Modal Propositions.

Of Hypotheticals.

§ 2.

A hypothetical Proposition is defined to be, *two or more categoricals united by a Copula* (or conjunction), and the different kinds of hypothetical Propositions are named from their respective conjunctions; *viz.* conditional, disjunctive, causal, *&c.*

When a hypothetical Conclusion is inferred from a hypothetical Premiss, so that the force of the Reasoning does not turn on the hypothesis, then the hypothesis (as in Modals) must be considered *as part of one of the Terms;* so that the *Reasoning* will be, in effect, categorical: *e. g.*

"Every conqueror is $\overbrace{\text{either a hero or a villain}}^{\text{predicate.}}$:
Cæsar was a conqueror; therefore
He was $\overbrace{\text{either } \textit{a hero or a villain.}}^{\text{predicate.}}$"

"Whatever comes from God is entitled to reverence;
$\overbrace{\text{If the Scriptures are not wholly false,}}^{\text{subject.}}$ they must come from God;
If they are not wholly false, they are entitled to reverence."

But when the *Reasoning* itself *rests* on the hypothesis (in which way a categorical Conclusion may be drawn from a hypothetical Premiss,) this is what is called a *hypothetical Syllogism;* and rules have been devised for ascertaining the validity of such Arguments at once, without bringing them into the categorical form. (And note, that in these Syllogisms the *hypothetical Premiss* is called the *major,* and the *categorical one* the *minor.*) They are of two kinds, *conditional* and *disjunctive.*

Of Conditionals.

§ 3.

A *Conditional* Proposition has in it an *illative force ; i. e.* it contains two, and only two categorical Propositions, whereof one *results* from the other (or follows from it,) *e. g.*

> “ If $\overbrace{\text{the Scriptures are not wholly false,}}^{\text{antecedent.}}$
> $\overbrace{\text{they are entitled to respect.}}^{\text{consequent.}}$”

That from which the other results is called the *antecedent ; that which results from it,* the *consequent* (*consequens ;*) and the *connection* between the two (expressed by the word “ if”) the *consequence* (*consequentia.*) The natural order is, that the antecedent should come *before* the consequent; but this is frequently reversed : *e. g.* “ the husbandman is well off if he knows his own advantages ;” Virg. *Geor.* And note, that the truth or falsity of a conditional Proposition depends entirely on the *consequence : e. g.* “ if Logic is useless, it deserves to be neglected ;” here both Antecedent and Consequent are *false :* yet the whole Proposition is *true ; i. e.* it is true that the Consequent *follows* from the Antecedent. "If Cromwell was an Englishman, he was an usurper," is just the reverse case: for though it is true that "Cromwell was an Englishman," and also "that he was an usurper," yet it is not true that the latter of these Propositions *depends on* the former; the whole Proposition, therefore, is false, though both Antecedent and Consequent are true. A Conditional Proposition, in short, may be considered as an assertion of the *validity* of a certain Argument; since to assert that an Argument is *valid*, is to assert that the Conclusion necessarily results from the Premises, whether those Premises be *true* or not.

The meaning, then, of a Conditional Proposition is this; that *the antecedent being granted, the consequent* is granted: which may be considered in two points of view: first, if the Antecedent *be* true, the Consequent *must* be true; hence the first rule; *the antecedent being granted, the consequent may be inferred;* secondly, if the Antecedent *were* true, the Consequent *would* be true; hence the second rule; *the consequent being denied, the antecedent may be denied;* for the Antecedent must in that case be false; since if it were true, the Consequent (which is granted to be false) would be true also: *e. g.* "if this man has a fever, he is sick:" here, if you *grant the antecedent*, the first rule applies, and you infer the truth of the Consequent; "he has a fever, therefore he is sick:" if A is B, C is D; but A is B, therefore C is D (and this is called a *constructive* Conditional Syllogism;) but if you *deny the consequent* (*i. e.* grant its *contradictory*) the second rule applies, and you infer the *contradictory of the antecedent;* "he is not sick, therefore he has not a fever;" this is the *destructive* Conditional Syllogism: if A is B, C is D; C is not D, therefore A is not B. Again, "if the crops are not bad, corn must be cheap," for a major; then, "but the crops are not bad, therefore corn must be cheap," is Constructive. "Corn is not cheap, therefore the crops are bad," is Destructive. "If every increase of population is desirable, some misery is desirable; but no misery is desirable; therefore some increase of population is not desirable," is Destructive. But if you *affirm* the *consequent,* or *deny* the *antecedent,* you can infer nothing; for the same Consequent may *follow from other* Antecedents: *e. g.* in the example above, a man may be sick *from other* disorders besides a fever; therefore it does not follow, from his being sick, that he has a fever; nor (for the same reason) from his *not* having a fever, that he is *not* sick. There are, therefore, two, and only two, kinds of Conditional Syllogisms; the *constructive,* founded on the first rule, and answering to *direct* Reasoning; and the *destructive,* on the second, answering to *indirect.*

And note, that a Conditional Proposition may (like the categorical A) be *converted by negation ; i. e.* you may take the *contradictory of the consequent,* as an *antecedent,* and the *contradictory of the antecedent,* as a *consequent: e. g.* "if this man is not sick he has not a fever." By this conversion of the major Premiss, a Constructive Syllogism may be reduced to a Destructive, and *vice versâ.* (See § 6. Ch. IV. p. 103.)

Of Disjunctives.

§. 4.

A Disjunctive Proposition may consist of any number of categoricals; and of these, *some one,* at least, must be *true,* or the whole Proposition will be false: if, therefore, one or more of these categoricals be denied (*i. e.* granted to be false) you may infer that the remaining one, or (if several) *some one* of the remaining ones, is true: *e. g.* "either the earth is eternal, or the work of chance, or the work of an intelligent Being; it is not eternal, nor the work of chance; therefore it is the work of an intelligent Being." "It is either spring, summer, autumn, or winter; but it is neither spring nor summer; therefore it is either autumn or winter." Either A is B, or C is D; but A is not B, therefore C is D. Note, that in these examples (as well as in very many others) it is implied not only that *one* of the members (the categorical Propositions) must be *true*, but that *only one* can be true; so that, in such cases, if one or more members be *affirmed*, the rest may be *denied;* [the members may then be called *exclusive:*] *e. g.* " it is summer, therefore it is neither spring, autumn, nor winter;" " either A is B, or C is D; but A is B, therefore C is not D." But this is by no means universally the case; *e. g.* " virtue tends to procure us either the esteem of mankind, or the favour of God:" here both members are true, and consequently from one being affirmed we are not authorized to deny the other.

It is evident that a disjunctive Syllogism may easily be reduced to a *conditional; e. g.* if it is not spring or summer, it is either autumn or winter, *&c.*

*The Dilemma**,

§ 5,

is a complex kind of Conditional Syllogism.

1st. If you have in the *major* Premiss *several antecedents* all with the *same consequent*, then these Antecedents, being (in the *minor*) *disjunctively granted* (*i. e.* it being granted that *some one* of them is true), the one *common consequent* may be inferred (as in the case of a simple Constructive Syllogism :) *e. g.* if A is B, C is D; and if X is Y, C is D; but either A is B, or X is Y; therefore C is D. "If the blest in heaven have no desires, they will be perfectly content; so they will, if their desires are fully gratified; but either they will have no desires, or have them fully gratified; therefore they will be perfectly content." Note, in this case, the two conditionals which make up the major Premiss may be united in one Proposition by means of the word "*whether*:" *e. g.* "whether the blest, *&c.* have no desires, or have their desires gratified, they will be content."

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* The account usually given of the Dilemma in Logical treatises is singularly perplexed and unscientific. Aldrich in speaking of it abstains from all use of Logical terms,

Simple constructive Dilemma.

Complex constructive Dilemma.

2d. But if the *several antecedents* have each a *different consequent*, then the Antecedents, being, as before, disjunctively granted, you can

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and speaks in a loose, vague, and rhetorical manner. And it is remarkable that all the rules he gives respecting it, and the faults against which he cautions us, relate exclusively to the *Subject-matter*: as if one were to lay down as rules respecting a Syllogism in Barbara, "1st. Care must be taken that the major Premiss be true; 2dly. That the minor Premiss be true!"

Most, if not all, writers on this point either omit to tell us whether the Dilemma is a kind of *conditional* or of *disjunctive* argument, or else refer it to the latter class, on account of its having one disjunctive Premiss; though it clearly belongs to the class of conditionals.

only *disjunctively* infer the Consequents: *e. g.* if A is B, C is D; and if X is Y, E is F: but either A is B, or X is Y; therefore either C is D, or E is F. "If Æschines joined in the public rejoicings, he is inconsistent; if he did not, he is unpatriotic; but he either joined, or not, therefore he is either inconsistent, or unpatriotic." (Demost. *For the Crown.*) This case, as well as the foregoing, is evidently *constructive.*

In the Destructive form, whether you have one Antecedent with several Consequents, or several Antecedents either with one, or with several Consequents; in all these cases, if you deny the *whole* of the Consequent, or Consequents, you may in the conclusion deny the *whole* of the Antecedent or Antecedents: *e. g.* "if the world were eternal, the most useful arts, such as printing, *&c.* would be of unknown antiquity: and on the same supposition, there would be records long prior to the Mosaic; and likewise the sea and land, in all parts of the globe, might be expected to maintain the same relative situations now as formerly: but none of these is the fact: therefore the world is not eternal." Again, "if the world existed from eternity, there would be records prior to the Mosaic; and if it were produced by chance, it would not bear marks of design: there are no records prior to the Mosaic; and the world does bear marks of design: therefore it neither existed from eternity, nor is the work of chance." These are commonly called Dilemmas, but hardly differ from *simple* conditional Syllogisms. Nor is the case different if you have *one* antecedent with several consequents, which consequents you *disjunctively* deny; for that comes to the same thing as *wholly* denying them; since if they be not *all* true, the *one antecedent* must equally fall to the ground; and the Syllogism will be equally simple: *e. g.** "if we are at peace with France by virtue of the treaty of Paris, we must acknowledge the sovereignty of Buonaparte; and also we must acknowledge that of Louis: but we cannot do both of these; therefore we are not at peace," *&c.;* which is evidently a simple Destructive. The true Dilemma is, "*a conditional Syllogism with several antecedents in the major, and a disjunctive minor;*" hence,

Destructive Dilemma.

3d. That is most properly called a *destructive Dilemma,* which has (like the constructive ones) a *disjunctive minor Premiss; i. e.* when you have several Antecedents with each a different Consequent; which Consequents (instead of wholly denying them, as in the case lately mentioned) you *disjunctively* deny; and thence, in the Conclusion, deny disjunctively the Antecedents: *e. g.* if A is B, C is D; and if X is Y,

* A.D. 1815.

E is F: but either C is not D, or E is not F; therefore, either A is not B, or X is not Y. "If this man were wise, he would not speak irreverently of Scripture in jest; and if he were good he would not do so in earnest; but he does it, either in jest, or earnest; therefore he is either not wise or not good."

Resolution of a Dilemma.

Every Dilemma may be reduced into two or more simple Conditional Syllogisms: *e. g.* "If Æschines joined, *&c.* he is inconsistent; he *did* join, *&c.* therefore he is inconsistent:" and again, "if Æschines did not join, *&c.* he is unpatriotic; he *did not*, *&c.* therefore he is unpatriotic." Now an opponent might deny *either* of the minor Premises in the above Syllogisms, but he could not deny *both*; and therefore he must admit one or the other of the Conclusions: for, when a Dilemma is employed, it is supposed that *some one* of the Antecedents must be true (or, in the destructive kind, *some one* of the Consequents false), but that we cannot tell *which* of them is so; and this is the reason why the argument is stated in the form of a Dilemma.

From what has been said, it may easily be seen that all Dilemmas are in fact *conditional syllogisms;* and that Disjunctive Syllogisms may also be reduced to the form of Conditionals: but as it has been remarked, that all Reasoning whatever may *ultimately* be brought to the one test of Aristotle's "Dictum," it remains to show how a Conditional Syllogism may be thrown into such a form, that that test will at once apply to it; and this is called the

*Reduction of Hypotheticals.**

§ 6.

For this purpose we must consider every Conditional Proposition as a universal affirma-

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* Aldrich has stated, through a mistake, that Aristotle utterly despised Hypothetical Syllogisms, and thence made no mention of them; but he did indicate his intention to treat of them in some part of his work, which either was not completed by him according to his design, or else (in common with many of his writings) has not come down to us.

Aldrich observes, that no hypothetical argument is valid which cannot be reduced to a categorical form; and this is evidently agreeable to what has been said at the beginning of this part; but then he has unfortunately omitted to teach us *how* to reduce Hypotheticals to this form; except in the case where the Antecedent and Consequent chance to have each the *same* subjects; in which case, he tells us to take the minor Premiss and Conclusion as an Enthymeme, and fill that up categorically; *e. g.* "If Cæsar was a tyrant, he deserved death: he was a tyrant; therefore he deserved death;" which may easily be reduced to a categorical form, by taking as a major Premiss, "all tyrants deserve death." But when (as is often the case) the Antecedent and Consequent have not each the same subject, (as in the very example he gives, "if A is B, C is D,") he gives no rule for reducing such a Syllogism as has a Premiss of this kind; and indeed leads us to suppose that it is to be rejected as invalid, though he has just before demonstrated its validity. And this is likely to have been one among the various causes which occasion tive categorical Proposition, of which the Terms are entire Propositions, *viz.* the antecedent answering to the *Subject*, and the consequent to the *Predicate ; e. g.* to say, " if Louis is a good king, France is likely to prosper," is equivalent to saying, " the case of Louis being a good king, is a case of France being likely to prosper :" and if it be granted, as a minor Premiss to the Conditional Syllogism, that " Louis is a good king," that is equivalent to saying, " the present case is the case of Louis being a good king ;" from which you will draw a conclusion in *Barbara,* (*viz.* " the present case is a case of France being likely to prosper,") exactly equivalent to the original Conclusion of the Conditional Syllogism ; *viz.* " France is likely to prosper." As the Constructive Conditional may thus be reduced to *Barbara,* so may the Destructive, in like manner, to *Celarent :*

many learners to regard the whole system of Logic as a string of idle reveries, having nothing true, substantial, or practically useful in it ; but of the same character with the dreams of Alchymy, Demonology, and judicial Astrology. Such a mistake is surely the less inexcusable in a learner, when his master first *demonstrates* the validity of a certain argument, and then tells him that after all it is good for nothing ; (*prorsus repudiandum.*) In the late editions of Aldrich's Logic, all that he says of the reduction of Hypotheticals is omitted ; which certainly would have been an improvement, if a more correct one had been substituted ; but as it is, there is a complete hiatus in the system.

e. g. "if the Stoics are right, pain is no evil: but pain is an evil; therefore, the Stoics are not right;" is equivalent to—"the case of the Stoics being right, is the case of pain being no evil; the present case is not the case of pain being no evil; therefore the present case is not the case of the Stoics being right." This is *Camestres*, which, of course, is easily reduced to *Celarent.* Or, if you will, all Conditional Syllogisms may be reduced to *Barbara,* by considering them all as constructive; which may be done, as mentioned above, by converting by negation the major Premiss. (See p. 112.)

The reduction of Hypotheticals may always be effected in the manner above stated; but as it produces a circuitous awkwardness of expression, a more convenient form may in some cases be substituted: *e. g.* in the example above, it may be convenient to take "*true*" for one of the Terms: "that pain is no evil is not true; that pain is no evil is asserted by the Stoics; therefore something asserted by the Stoics is not true." Sometimes again it may be better to unfold the argument into two Syllogisms: *e. g.* in a former example; first, "Louis is a good king; the governor of France is Louis; therefore the governor of France is a good king." And then, second, "every country governed by a good king is likely to prosper,"

&c. [A Dilemma is generally to be reduced into two or more categorical Syllogisms.] And when the antecedent and consequent have each the *same* Subject, you may sometimes reduce the Conditional by merely substituting a categorical major Premiss for the conditional one: *e. g.* instead of "if Cæsar was a tyrant, he deserved death; he was a tyrant, therefore he deserved death;" you may put for a major, "all tyrants deserve death;" *&c.* But it is of no great consequence, whether Hypotheticals are reduced in the most *neat and concise* manner or not; since it is not intended that they should be reduced to categoricals, in *ordinary practice,* as the *readiest way* of trying their validity, (their own rules being quite sufficient for that purpose;) but only *that we should be able,* if required, to subject any argument whatever to the test of Aristotle's Dictum, in order to show that all Reasoning turns upon one simple principle.

Of Enthymeme, Sorites, &c.

§ 7.

There are various abridged forms of Argument which may be easily expanded into regular Syllogisms: such as,

1st. The Enthymeme, which is a Syllogism **Enthymeme.** with one Premiss suppressed. As all the Terms will be found in the remaining Premiss and Conclusion, it will be easy to fill up the Syllogism by supplying the Premiss that is wanting, whether major or minor: *e. g.* "Cæsar was a tyrant; therefore he deserved death." "A free nation must be happy; therefore the English are happy."

This is the ordinary form of speaking and writing. It is evident that Enthymemes may be filled up hypothetically.*

2d. When you have a string of Syllogisms, in which the Conclusion of each is made the Premiss of the next, till you arrive at the main or ultimate Conclusion of all, you may sometimes state these briefly, in a form called *Sorites;* in which the Predicate of the first proposition is made the Subject of the next; and so on, to any length, till finally the Predicate of the last of the Premises is predicated (in the Conclusion) of the Subject of the first: *e. g.* A is B, B is C, C is D, D is E; therefore A is E. "The English are a brave people; a brave people are free; a free people are happy; therefore the English are happy." A Sorites, then, has as many middle Terms as there are intermediate

Sorites.

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* It is to be observed, that the Enthymeme is *not syllogistic; i. e.* its conclusiveness is not apparent from the mere form of expression, without regard to the meaning of the Terms, because it is from *that* we form our judgment as to the truth of the suppressed Premiss. The Sorites, on the other hand, is strictly syllogistic; as may be seen by the examples.

Propositions between the first and the last; and, consequenlty, it may be drawn out into as many separate Syllogisms; of which the first will have, for its *major Premiss,* the second, and for its *minor*, the *first* of the Propositions of the Sorites; as may be seen by the example. It is also evident, that in a Sorites you cannot have more than *one* negative Proposition, and *one* particular; for else, one of the Syllogisms would have its Premises both negative or both particular, (vide p. 93.)

Hypothetical Sorites.

A string of Conditional Syllogisms may in like manner be abridged into a Sorites; *e. g.* if A is B, C is D; if C is D, E is F; if E is F, G is H; but A is B, therefore G is H. "If the Scriptures are the word of God, it is important that they should be well explained; if it is important, *&c.* they deserve to be diligently studied: if they deserve, *&c.* an order of men should be set aside for that purpose; but the Scriptures are the word, *&c.*; therefore an order of men should be set aside for the purpose, *&c.*"*

Induction, Example.

Those who have spoken of *Induction* or of *Example,* as a distinct kind of Argument in a Logical point of view, have fallen into the common error of confounding *Logical* with *Rhetorical* distinctions, and have wandered from their subject as much as a writer on the orders of Architecture would do who should introduce the distinction between buildings of brick and of marble. Logic takes no cognizance of *Induction*, for instance, or of *à priori* reasoning, *&c.*, as distinct *Forms* of argument; for when thrown into the syllogistic form, and when letters of the alphabet are substituted for the Terms (and it is thus that an Argument is properly to be brought under the cognizance of Logic), there is no distinction between them; *e. g.* a "Property which belongs to the ox, sheep, deer, goat, and antelope, belongs to all horned animals; rumination belongs to these; therefore, to all." This, which is an inductive argument, is evidently a Syllogism in *Barbara*. The essence of an inductive argument (and so of the other kinds which are distinguished for it) consists not in the *form of the Argument*, but in the relation which the *Subject-matter* of the Premises bears to that of the Conclusion.*

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* Hence it is evident how injudicious an arrangement has been adopted by former writers on Logic, who have treated of the Sorites and Enthymeme before they entered on the subject of Hypotheticals.

3d. There are various other abbreviations commonly used, which are so obvious as hardly to call for explanation: as where one of the Premises of a Syllogism is itself the Conclusion of an Enthymeme which is expressed at the same time: *e. g.* " all useful studies deserve encouragement; Logic is such, (*since it helps us to reason accurately,*) therefore it deserves encouragement;" here the minor Premiss is what is called an *Enthymematic sentence.* The *antecedent* in that minor Premiss (*i. e.* that which *makes* it Enthymematic) is called by Aristotle the *Prosyllogism.*

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* Nothing probably has tended more to foster the prevailing error of considering Syllogism as a *particular kind of argument*, than the inaccuracy just noticed, which appears in all or most of the logical works extant. See Dissertation on the province of Reasoning, Ch. 1.

It is evident that you may, for brevity, substitute for any term an *equivalent;* as in the last example, " *it,*" for " Logic;" " *such*" for " a useful study," *&c.*

Syllogisms apparently incorrect.

4th. And many Syllogisms, which at first sight appear faulty, will often be found, on examination, to contain correct reasoning, and, consequently, to be reducible to a regular form; *e. g.* when you have, *apparently, negative Premises,* it may happen, that by considering one of them as *affirmative,* (see Ch. II. § 4. p. 85.) the Syllogism will be regular: *e. g.* " no man is happy who is not secure: no tyrant is secure; therefore no tyrant is happy," is a Syllogism in *Celarent.** Sometimes there will appear to be too many terms; and yet there will be no fault in the Reasoning, only an irregularity in the expression: *e. g.* "no irrational agent could produce a work which manifests design; the universe is a work which manifests design; therefore no irrational agent could have produced the universe." Strictly speaking, this Syllogism has five Terms; but if you look to the meaning, you will see, that in the first Premiss (considering it *as a part of this Argument*) it is not, properly, "an irrational agent" that you are speaking of, and of which you predicate that it could not produce a work manifesting design; but rather it is this "work," *&c.* of which you are speaking, and of which it is predicated that it could not be produced by an irrational agent; if, then, you state the Propositions in that form, the Syllogism will be perfectly regular.

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* If this experiment be tried on a Syllogism which has *really* negative Premises, the only effect will be to change

Thus, such a Syllogism as this, "every true patriot is disinterested; few men are disinterested; therefore few men are true patriots;" might appear at first sight to be in the second Figure, and faulty; whereas it is *Barbara*, with

that fault into another: *viz.* an excess of Terms, or (which is substantially the same) an undistributed middle; *e. g.* "an enslaved people is not happy; the English are not enslaved; therefore they are happy:" if "enslaved" be regarded as one of the Terms, and "not enslaved" as another, there will manifestly be four. Hence you may see how very little difference there is in reality between the different faults which are enumerated.

the *Premises transposed;* for you do not really predicate of "few men," that they are "disinterested," but of "*disinterested persons*," that they are "few." Again, "none but candid men are good reasoners; few infidels are candid; few infidels are good reasoners." In this it will be most convenient to consider the major Premiss as being, "all good reasoners are candid," (which of course is precisely equipollent to its illative converse by negation;) and the minor Premiss and Conclusion may in like manner be fairly expressed thus—"most infidels are not candid; therefore most infidels are not good reasoners:" which is a regular Syllogism in *Camestres*. Or, if you would state it in the first Figure, thus: "those who are not candid (or uncandid) are not good reasoners; most infidels are not candid; most infidels are not good reasoners."

§ 8.

Mistakes as to the office of Logic.

The foregoing rules enable us to develope the principles on which all reasoning is conducted, whatever be the Subject-matter of it, and to ascertain the validity or fallaciousness of any apparent argument, as far as the *form of expression* is concerned; that being alone the proper province of Logic.

But it is evident that we may nevertheless remain liable to be deceived or perplexed in Argument by the assumption of *false or doubtful Premises,* or by the employment of *indistinct or ambiguous Terms;* and, accordingly, many Logical writers, wishing to make their systems appear as perfect as possible, have undertaken to give rules "for attaining clear ideas," and for "guiding the judgment;" and fancying or professing themselves successful in this, have consistently enough denominated Logic, the "Art of using the Reason;" which in truth it would be, and would nearly supersede all other studies, if it could of itself ascertain the *meaning* of every *Term,* and the *truth or falsity* of every *Proposition,* in the same manner as it actually can the *validity* of every *Argument.* And they have been led into this, partly by the consideration that Logic is concerned about the three operations of the mind—simple Apprehension, Judgment, and Reasoning; not observing that it is not equally concerned about all: the last operation being alone its appropriate province; and the rest being treated of only in reference to that.

The contempt justly due to such pretensions has most unjustly fallen on the Science itself; much in the same manner as Chemistry was brought into disrepute among the unthinking by the extravagant pretensions of the Alchymists. And those Logical writers have been censured, not (as they should have been) for *making* such professions, but for *not fulfilling* them. It has been objected, especially, that the rules of Logic leave us still at a loss as to the most important and difficult point in Reasoning; *viz.* the ascertaining the sense of the terms employed, and removing their ambiguity. A complaint resembling that made (according to a story told by Warburton in his *Div. Leg.*, and before alluded to) by a man who found fault with all the reading-glasses presented to him by the shopkeeper; the fact being that he had never *learnt to read.* In the present case, the complaint is the more unreasonable, inasmuch as there neither is, nor ever *can possibly be,* any such system devised as will effect the proposed object of clearing up the ambiguity of Terms. It is, however, no small advantage, that the rules of Logic, though they cannot, alone, ascertain and clear up ambiguity in any Term, yet do point out in *which* Term of an Argument it is to be sought for; directing our attention to the *middle* Term, as the one on the ambiguity of which a Fallacy is likely to be built.

It will be useful, however, to class and describe the different kinds of ambiguity which are to be met with; and also the various ways in which the insertion of false, or, at least, unduly assumed, Premises, is most likely to elude observation. And though the remarks which will be offered on these points may not be considered as strictly forming a *part* of Logic, they cannot be thought out of place, when it is considered how essentially they are connected with the *application* of it.

Chapter III.

OF FALLACIES.

Introduction.

Definition of Fallacy.

By a Fallacy is commonly understood, "any unsound mode of arguing, which appears to demand our conviction, and to be decisive of the question in hand, when in fairness it is not." Considering the ready detection and clear exposure of Fallacies to be both more extensively important, and also more difficult, than many are aware of, I propose to take a Logical view of the subject; referring the different Fallacies to the most convenient heads, and giving a scientific analysis of the procedure which takes place in each.

After all, indeed, in the practical detection of each individual Fallacy, much must depend on natural and acquired acuteness; nor can any rules be given, the mere learning of which will enable us to *apply* them with mechanical certainty and readiness: but still we shall find that to take correct general views of the subject, and to be familiarized with scientific discussions of it, will tend, above all things, to *engender* *such a habit of mind,* as will best fit us for practice.

Indeed the case is the same with respect to Logic in general; scarcely any one would, in ordinary practice, state to himself either his own or another's reasoning, in Syllogisms in Barbara at full length; yet a familiarity with Logical principles tends very much (as all feel, who are really well acquainted with them) to beget a habit of clear and sound reasoning. The truth is, in this, as in many other things, there are processes going on in the mind (when we are practising anything quite familiar to us) with such rapidity as to leave no trace in the memory; and we often apply principles which did not, as far as we are conscious, even occur to us at the time.

Inaccurate language of former writers.

It would be foreign, however, to the present purpose, to investigate fully the manner in which certain studies operate in remotely producing certain effects on the mind: it is sufficient to establish the *fact*, that habits of scientific analysis (besides the intrinsic beauty and dignity of such studies) lead to practical advantage. It is on Logical principles therefore that I propose to discuss the subject of Fallacies; and it may, indeed, seem to have been unnecessary to make any apology for so doing, after what has been formerly said, generally, in defence of Logic; but that the generality of

Logical writers have usually followed so opposite a plan: whenever they have to treat of anything that is beyond the mere elements of Logic, they totally lay aside all reference to the principles they have been occupied in establishing and explaining, and have recourse to a loose, vague, and popular kind of language; such as would be the best suited indeed to an exoterical discourse, but seems strangely incongruous in a professed Logical treatise. What should we think of a Geometrical writer, who, after having gone through the elements with strict definitions and demonstrations, should, on proceeding to Mechanics, totally lay aside all reference to scientific principles,—all use of technical terms,—and treat of the subject in undefined terms, and with probable and popular arguments? It would be thought strange, if even a Botanist, when addressing those whom he had been instructing in the principles and the terms of his system, should totally lay these aside when he came to describe plants, and adopt the language of the vulgar. Surely it affords but too much plausibility to the cavils of those who scoff at Logic altogether, that the very writers who profess to teach it should never themselves make any application of, or reference to, its principles, on those very occasions, when, and *when only*, such application and reference are to be expected. If the principles of any system are *well* laid down,—if its technical language is judiciously framed,—then, surely, those principles and that language will afford (for those who have once thoroughly learned them) the best, the most clear, simple, and concise method of treating any subject connected with that system. Yet even the accurate Aldrich, in treating of the Dilemma and of the Fallacies, has very much forgotten the Logician, and assumed a loose and rhetorical style of writing, without making any application of the principles he had formerly laid down, but, on the contrary, sometimes departing widely from them.*

The most experienced teachers, when addressing those who are familiar with the elementary principles of Logic, think it requisite, not indeed to lead them, on each occasion, *through the whole detail* of those principles, when the process is quite obvious, but always to *put them on the road*, as it were, to those principles, that they may plainly see their own way to the end, and take a scientific view of the subject: in the same manner as mathematical writers avoid indeed the occasional tediousness of going all through a very simple demonstration, which the learner, if he will, may easily supply; but yet always speak in strict mathematical language, and with reference to mathematical principles, though they do not always state them at full length. I would not profess, therefore, any more than they do, to write (on subjects connected with the science) in a language intelligible to those who are ignorant of its first rudiments: to do so, indeed, would imply that one was not taking a scientific view of the subject, nor availing one's-self of the principles that had been established, and the accurate and concise technical language that had been framed.

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* He is far more confused in his discussion of Fallacies than in any other part of his treatise; of which this one instance may serve: after having distinguished Fallacies into those in the *expression*, and those in the *matter* ("in dictione," and "extra dictionem"), he observes of one or two of these last, that they are not properly called *Fallacies*, as not being *Syllogisms faulty in form* ("Syllogismi forma peccantes,") as if any one, which was such, could be "Fallacia *extra* dictionem."

§ 1.

Division of Fallacies.

The division of Fallacies into those in the words (IN DICTIONE,) and those in the matter (EXTRA DICTIONEM) has not been, by any writers hitherto, grounded on any distinct principle: at least, not on any that they have themselves adhered to. The confounding together, however, of these two classes is highly detrimental to all clear notions concerning Logic; being obviously allied to the prevailing erroneous views which make Logic the *art of* *employing the intellectual faculties in general,* having the *discovery of truth* for its object, and all kinds of knowledge for its proper subject matter ; with all that train of vague and groundless speculations which have led to such interminable confusion and mistakes, and afforded a pretext for such clamorous censures.

It is important, therefore, that rules should be given for a division of Fallacies into Logical, and Non-logical, on such a principle as shall keep clear of all this indistinctness and perplexity.

If any one should object, that the division about to be adopted is in some degree arbitrary, placing under the one head Fallacies, which many might be disposed to place under the other, let him consider not only the indistinctness of all former divisions, but the utter impossibility of framing *any* that shall be completely secure from the objection urged, in a case where men have formed such various and vague notions, from the very want of some clear principle of division. Nay, from the elliptical form in which all reasoning is usually expressed, and the peculiarly involved and oblique form in which Fallacy is for the most part conveyed, it must of course be often a matter of doubt, or rather, of arbitrary *choice,* not only to which genus each *kind* of Fallacy should be referred, but even to which kind to refer any *one individual* Fallacy: for since, in any course of Argument, one Premiss is usually suppressed, it frequently happens, in the case of a Fallacy, that the hearers are left to the alternative of supplying *either* a Premiss which is *not true*, or *else*, one which *does not prove* the Conclusion; *e. g.* if a man expatiates on the distress of the country, and thence argues that the government is tyrannical, we must suppose him to assume *either* that "every distressed country is under a tyranny," which is a manifest falsehood, *or*, merely that "every country under a tyranny is distressed," which, however true, proves nothing, the Middle Term being undistributed. Now, in the former case, the Fallacy would be referred to the head of "extra dictionem;" in the latter to that of "in dictione:" which are we to suppose the speaker meant us to understand? Surely just whichever each of his hearers might happen to prefer: some might assent to the false Premiss; others, allow the unsound Syllogism: to the Sophist himself it is indifferent, as long as they can but be brought to admit the Conclusion.

Without pretending, then, to conform to every one's mode of speaking on the subject, or to lay down rules which shall be in themselves (without any call for labour or skill in the person who employs them) readily applicable to, and decisive on each individual case, I propose a division which is at least perfectly clear in its main principle, and coincides, perhaps, as nearly as possible with the established notions of Logicians on the subject.

§ 2.

Logical Fallacies.

In every Fallacy, the Conclusion either *does*, or *does not follow from the Premises*. Where the Conclusion does not follow from the Premises, it is manifest that the fault is in the *Reasoning*, and in that alone; these, therefore, we call Logical Fallacies,* as being, properly, violations of those rules of Reasoning which it is the province of Logic to lay down.

Of these, however, one kind are more *purely Logical*, as exhibiting their fallaciousness by the bare *form* of the expression, without any regard to the meaning of the Terms: to which class belong: 1st. Undistributed Middle; 2d. Illicit Process; 3d. Negative Premises, or Affirmative Conclusion from a negative Premiss, and *vice versâ:* to which may be added, 4th, those which have palpably (*i. e. expressed*) more than three Terms.

The other kind may be most properly called *semi-logical; viz.* all the cases of ambiguous middle Term except its non-distribution: for though in such cases the Conclusion does not follow, and though the rules of Logic show that it does not, *as soon as the ambiguity of the middle Term is ascertained,* yet the discovery and ascertainment of this ambiguity requires attention to the *sense of the term,* and knowledge of the Subject-matter; so that here, Logic "teaches us not *how to find* the Fallacy, but only *where to search* for it," and on what principles to condemn it.

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* In the same manner as we call that a *criminal* court in which crimes are *judged*.

Accordingly it has been made a subject of bitter complaint against Logic, that it presupposes the most difficult point to be already accomplished, *viz.* the sense of the Terms to be ascertained. A similar objection might be urged against every other art in existence; *e. g.* against Agriculture, that all the precepts for the cultivation of land presuppose the possession of a farm; or against Perspective, that its rules are useless to a blind man. The objection is indeed peculiarly absurd when urged against Logic, because the object which it is blamed for not accomplishing *cannot possibly* be within the province of *any one* art whatever. Is it indeed possible or conceivable that there should be any method, science, or system, that should enable one to know the full and exact meaning of every Term in existence? The utmost that can be done is to give some general rules that may assist us in this work; which is done in the first two parts of Logic.

The very author of the objection says, "This (the comprehension of the meaning of general Terms) is a study which every individual must carry on for himself; and of which no rules of Logic (how useful soever they may be in directing our labours) can supersede the necessity." D. Stewart, *Phil.* vol. ii. ch. ii. s. 2.

Nothing perhaps tends more to conceal from men their imperfect conception of the meaning of a term, than the circumstance of their being able fully to comprehend a *process of reasoning* in which it is involved, without attaching any distinct meaning at all to that Term; as is evident when X Y Z are used to stand for Terms, in a regular Syllogism: thus a man may be *familiarized* with a Term, and never find himself *at a loss* from not comprehending it; from which he will be very likely to infer that he *does* comprehend it, when perhaps he does not, but employs it vaguely and incorrectly; which leads to fallacious Reasoning and confusion. It must be owned, however, that many Logical writers have, in great measure, brought on themselves the reproach in question, by calling Logic "the right use of Reason," laying down "rules for gaining clear ideas," and such-like *αλαζωνεια*, as Aristotle calls it. (*Rhet.* book i. ch. ii.)

§ 3.

Material Fallacies.

The remaining class (*viz.* where the Conclusion does follow from the Premises) may be called the Material, or Non-logical Fallacies: of these there are two kinds; [*] 1st. when the Premises are such as ought not to have been assumed; 2d. when the Conclusion is not the one required, but irrelevant; which Fallacy is called "*ignoratio elenchi*," because your Argument is not the "elenchus" (*i. e.* proof of the *contradictory*) of your opponent's assertion, which it should be; but proves, instead of that, some other proposition resembling it. Hence, since Logic defines what Contradiction is, some may choose rather to range this with the *Logical* Fallacies, as it seems, so far, to come under the jurisdiction of that art; nevertheless, it is perhaps better to adhere to the original division, both on account of its clearness, and also because few would be inclined to apply to the Fallacy in question the accusation of being *inconclusive*, and consequently illogical Reasoning: besides which, it seems an artificial and circuitous way of speaking, to suppose in all cases an *opponent* and a *contradiction;* the simple statement of the matter being this,—I

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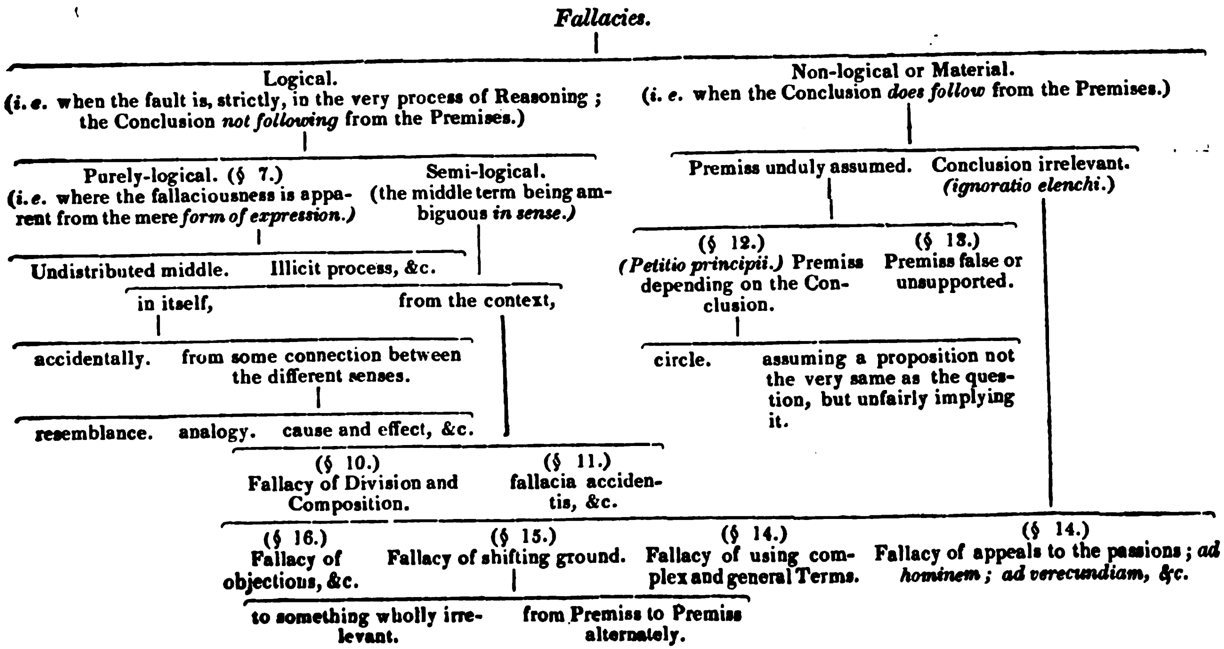
[*] For it is manifest that the fault, if there be any, must be either 1st. in the *Premises*, or 2dly. in the *Conclusion*, or 3dly. in the *Connection* between them.



Fallacies.

- Logical. (*i. e.* when the fault is, strictly, in the very process of Reasoning; the Conclusion *not following* from the Premises.)
  - Purely-logical. (§ 7.) (*i. e.* where the fallaciousness is apparent from the mere *form of expression.*)
    - Undistributed middle.
    - Illicit process, &c.
  - Semi-logical. (the middle term being ambiguous *in sense.*)
    - in itself,
      - accidentally.
      - from some connection between the different senses.
        - resemblance.
        - analogy.
        - cause and effect, &c.
    - from the context,
    - (§ 10.) Fallacy of Division and Composition.
    - (§ 11.) fallacia accidentis, &c.
- Non-logical or Material. (*i. e.* when the Conclusion *does follow* from the Premises.)
  - Premiss unduly assumed.
    - (§ 12.) (*Petitio principii.*) Premiss depending on the Conclusion.
      - circle.
      - assuming a proposition not the very same as the question, but unfairly implying it.
    - (§ 13.) Premiss false or unsupported.
  - Conclusion irrelevant. (*ignoratio elenchi.*)
    - (§ 16.) Fallacy of objections, &c.
    - (§ 15.) Fallacy of shifting ground.
      - to something wholly irrelevant.
      - from Premiss to Premiss alternately.
    - (§ 14.) Fallacy of using complex and general Terms.
    - (§ 14.) Fallacy of appeals to the passions; *ad hominem; ad verecundiam, &c.*

§ 5.

On each of the Fallacies which have been thus enumerated and distinguished, I propose to offer some more particular remarks; but before I proceed to this, it will be proper to premise two general observations, 1st. on the *importance*, and 2d. the *difficulty*, of detecting and describing Fallacies; both have been already slightly alluded to; but it is requisite that they should here be somewhat more fully and distinctly set forth.

Importance of detecting Fallacies.

1st. It seems by most persons to be taken for granted that a Fallacy is to be dreaded merely as a weapon fashioned and wielded by a skilful sophist: or if they allow that a man may with honest intentions slide into one unconsciously, in the heat of *argument*, still they seem to suppose that where there is no *dispute*, there is no cause to dread Fallacy; whereas there is much danger, even in what may be called *solitary reasoning*, of sliding unawares into some Fallacy, by which one may be so far deceived as even to *act upon* the conclusion thus obtained. By solitary reasoning I mean the case in which one is not seeking for *arguments* to prove a *given question*, but labouring to elicit from one's previous stock of knowledge *some useful inference**. To select one from innumerare the counters of wise men, and the money of fools*.”

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* See the chapter on "inferring and proving," (Ch. iii.) in the "Dissertation on the Province of Reasoning."

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* “Men imagine,” says Bacon, “that their minds have the command of Language; but it often happens that Language bears rule over their mind.” Some of the weak and absurd arguments which are often urged against Suicide may be traced to the influence of words on thoughts. When a Christian moralist is called on for a direct *Scriptural precept* against suicide, instead of replying that the Bible is not meant for a complete code of *laws*, but for a system of *motives* and *principles*, the answer frequently given is “thou shalt do no *murder*;” and it is assumed in the arguments drawn from Reason, as well as in those from Revelation, that Suicide is a species of Murder; *viz.* because it is *called* self-*murder*; and thus, deluded by a name, many are led to rest on an unsound argument, which, like all other fallacies, does more harm than good, in the end, to the cause of truth. Suicide, if any one considers the nature and not the name of it, evidently wants the most essential characteristic of murder, *viz.* the *hurt and injury* done to one's neighbour, in depriving him of life, as well as to others by the *insecurity* they are in consequence liable to feel. And since no one can, strictly speaking, do *injustice* to himself, he cannot, in the literal and primary acceptation of the words, be said either to rob or to murder himself. He who deserts the post to which he is appointed by his great Master, and presumptuously cuts short the state of probation graciously allowed him for working out his salvation, (whether by action or by patient endurance,) is guilty indeed of a grievous sin, but of one not the least analogous in its character to murder. It implies no inhumanity. It is much more closely allied to the sin of wasting life in indolence, or in trifling pursuits,—that life which is bestowed as a seed-time for the harvest of immortality. What is called in familiar phrase “killing time,” is, in truth, an approach, as far as it goes, to the destruction of one's own life: for “Time is the stuff life is made of.”

More especially deserving of attention is the influence of Analogical Terms in leading men into erroneous notions in Theology; where the most important terms are analogical: and yet, they are continually employed in Reasoning, without due attention (oftener through want of caution than by unfair design) to their analogical nature; and most of the errors into which theologians have fallen may be traced, in part, to this cause*.

Thus much, as to the extensive practical influence of Fallacies, and the consequent high importance of detecting and exposing them.

§ 6.

Difficulty of detecting Fallacies.

2dly. The second remark is, that while sound reasoning is ever the more readily admitted, the more clearly it is perceived to be such, Fallacy, on the contrary, being rejected as soon as perceived, will, of course, be the more likely to obtain reception, the more it is obscured and

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It is surely wiser and safer to confine ourselves to such arguments as will bear the test of a close examination, than to resort to such as may indeed at the first glance be more specious and appear stronger, but which, when exposed, will too often leave a man a dupe to the fallacies on the opposite side. But it is especially the error of controversialists to urge every thing that *can* be urged; to snatch up the first weapon that comes to hand; ("furor arma ministrat;") without waiting to consider what is TRUE.

* See the note to ch. v. § 1 of the Dissertation subjoined.

disguised by obliquity and complexity of expression: it is thus that it is the most likely either to slip accidentally from the careless reasoner, or to be brought forward deliberately by the Sophist. Not that he ever wishes this obscurity and complexity to be perceived; on the contrary, it is for his purpose that the expression should *appear* as clear and simple as possible, while in reality it is the most tangled net he can contrive. Thus, whereas it is usual to express our reasoning elliptically, so that a Premiss (or even two or three entire steps in a course of argument) which may be readily supplied, as being perfectly obvious, shall be left to be understood, the Sophist in like manner suppresses what is *not* obvious, but is in reality the weakest part of the argument; and uses every other contrivance to withdraw our attention (his art closely resembling the juggler's) from the quarter where the Fallacy lies. Hence the uncertainty before mentioned, to which class any individual Fallacy is to be referred: and hence it is that the *difficulty* of detecting and exposing Fallacy, is so much greater than that of comprehending and developing a process of sound argument. It is like the detection and apprehension of a criminal in spite of all his arts of concealment and disguise; when this *is accomplished,* and he is *brought to trial* with all the evidence of his guilt produced, his conviction and punishment are easy; and this is precisely the case with those Fallacies which are given as examples in Logical treatises; they are in fact already detected, by being stated in a plain and regular form, and are, as it were, only brought up to *receive sentence.* Or again, fallacious reasoning may be compared to a perplexed and entangled mass of *accounts*, which it requires much sagacity and close attention to clear up, and display in a regular and intelligible form; though *when this is once accomplished,* the whole appears so perfectly *simple*, that the unthinking are apt to undervalue the skill and pains which have been employed upon it.

Moreover, it should be remembered that a very *long* discussion is one of the most effectual veils of Fallacy; sophistry, like poison, is at once detected, and nauseated when presented to us in a concentrated form; but a Fallacy which when stated barely, in a few sentences, would not deceive a child, may deceive half the world if *diluted* in a quarto volume. For, as in a calculation, one single figure incorrectly stated will enable us to arrive at any result whatever, though every other figure, and the whole of the operations, be correct, so, a single false assumption in any process of reasoning, though every other be true, will enable us to draw what conclusion we please; and the greater the number of true assumptions, the more likely it is that the false one will pass unnoticed*. But when you single out one step in the course of the reasoning, and exhibit it as a Syllogism with one Premiss true and the other false, the sophistry is easily perceived. To speak, therefore, of all the Fallacies that have ever been enumerated as too glaring and obvious to need even being mentioned, because the simple instances given in logical treatises, and there stated in the plainest and consequently most easily detected form, are such as would (in that form) deceive no one;—this, surely, shows either extreme weakness, or else unfairness. It may readily be allowed, indeed, that to detect *individual* Fallacies, and *bring them under* the general rules, is a harder task than to *lay down* those general rules; but this does not prove that the latter office is trifling or useless, or that it does not essentially conduce to the performance of the other: there may be more ingenuity shown in detecting and arresting a malefactor, and convicting him of the fact, than in laying down a law for the trial and punishment of such persons; but the latter office, *i. e.* that of a legislator, is surely neither unnecessary nor trifling.

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* I have seen a long argument to prove that the potato is not a cheap article of food; in which there was an elaborate, and perhaps correct, calculation of the produce per acre of potatoes and wheat,—the quantity lost in bran—expense of grinding, dressing, &c. and an assumption slipped in, as it were incidentally, that *a given quantity of potatoes contains but one-tenth part of nutritive matter equal to bread:* from all which (and there is probably *but one* groundless assertion in the whole) a most triumphant result was deduced. This, however, gained the undoubting assent of a Review by no means friendly to the author, and usually noted more for scepticism than for ready assent! "All things," says an apocryphal writer, "are double, one against another, and nothing is made in vain:" unblushing assertors of falsehood seem to have a race of easy believers provided on purpose for their use; men who will not indeed believe the best-established truths of religion, but are ready to believe anything else.

It should be added that a close observation and Logical analysis of Fallacious arguments, as it tends (according to what has been already said) to form a habit of mind well suited for the practical detection of Fallacies; so, for that very reason, it will make us the more careful in making *allowance* for them: *i. e.* to bear in mind how much men in general are liable to be influenced by them. *E. G.* a *refuted argument ought* to *go for nothing;* but in *fact* it will generally prove *detrimental* to the cause, from the Fallacy which will be presently explained. Now, no one is more likely to be practically aware of this, and to take precautions accordingly, than he who is most versed in the whole he will often use such arguments as would never have *convinced* himself, and are not likely to convince others, but rather (by the operation of the converse Fallacy) to *confirm* in their dissent those who before disagreed with him.

It is best therefore to endeavour to put yourself in the place of an *opponent* to your own arguments, and consider whether you could not find some objection to them. The applause of *one's own party* is a very unsafe ground for judging of the real force of an argumentative work, and consequently of its real utility. To satisfy those who were doubting, and to convince those who were opposed, are the only sure tests: but *these* persons are seldom very loud in their applause, or very forward in bearing their testimony.

Of Ambiguous middle.

§ 8.

That case in which the middle is undistributed, belongs of course to the preceding head, the fault being perfectly manifest from the mere form of the expression: in that case the extremes are compared with *two parts of the same* term; but in the Fallacy which has been called semi-logical, (which we are now to speak of) the extremes are compared with *two different* terms, the middle being used in two different senses in the two Premises*.

And here it may be remarked, that when the argument is brought into the form of a *regular Syllogism,* the contrast between these two senses will usually appear very striking, from the two Premises being *placed together;* and hence the scorn with which many have treated the very mention of the Fallacy of Equivocation, deriving their only notion of it from the *exposure* of it in Logical treatises; whereas, in practice it is common for the two Premises to be placed very far apart, and discussed in different parts of the discourse; by which means the inattentive hearer overlooks any ambiguity that may exist in the middle term. Hence the advantage of Logical habits, to fix our attention strongly and steadily on the *important* terms of an argument.

One case, which may be regarded as coming under the head of Ambiguous middle, is, what is called "*Fallacia Figuræ Dictionis,*" the Fallacy built on the grammatical structure of language, from men's usually taking for granted that *paronymous* words (*i. e.* those belonging to each other, as the substantive, adjective, verb, *&c.* of the same root) have a precisely correspondent meaning; which is by no means universally the case. Such a fallacy could not indeed be even exhibited in strict Logical form, which would preclude even the attempt at it, since it has two middle terms in sound as well as sense: but nothing is more common in practice than to vary continually the terms employed, with a view to grammatical convenience; nor is there anything unfair in such a practice, as long as the *meaning* is preserved unaltered: *e. g.* "murder should be punished with death; this man is a murderer; therefore he deserves to die," *&c. &c.* Here we proceed on the assumption (in this case just) that to commit murder and to be a murderer,—to deserve death and to be one who ought to die, are, respectively, equivalent expressions: and it would frequently prove a heavy inconvenience to be debarred this kind of liberty; but the abuse of it gives rise to the Fallacy in question: *e. g.* "*projectors* are unfit to be trusted; this man has formed a *project,* therefore he is unfit to be trusted*:" here the Sophist proceeds on the hypothesis that he who forms a *project* must be a *projector:* whereas the bad sense that commonly attaches to the latter word, is not at all implied in the former.

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* For some instances of important ambiguities, see Appendix.

This Fallacy may often be considered as lying not in the middle, but in one of the terms of the conclusion; so that the conclusion drawn shall not be, in reality, at all warranted by the Premises, though it will appear to be so, by means of the grammatical affinity of the words: *e. g.* "to be acquainted with the guilty is a *presumption* of guilt; this man is so acquainted; therefore we may *presume* that he is guilty:" this argument proceeds on the supposition of an exact correspondence between "*presume*" and "*presumption*," which, however, does not really exist; for "presumption" is commonly used to express a kind of *slight suspicion;* whereas "to presume" amounts to *absolute belief.*

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* Adam Smith's *Wealth of Nations:* Usury.

The above remark will apply to some other cases of ambiguity of term; *viz.* the conclusion will often contain a term, which (though not, as here, different *in expression* from the corresponding one in the Premiss, yet) is *liable* to be understood in a sense different from what it bears to the Premiss; though, of course, such a Fallacy is less common, because less likely to deceive, in *those* cases, than in *this;* where the term used in the conclusion, though professing to correspond with one in the Premiss, is not the very *same in expression,* and therefore is more *certain* to convey a different sense; which is what the Sophist wishes.

There are innumerable instances of a non-correspondence in paronymous words, similar to that above instanced; as between *art* and *artful*, *design* and *designing*, *faith* and *faithful*, *&c.*; and the more slight the variation of meaning, the more likely is the Fallacy to be successful; for when the words have become so widely removed in sense as "pity" and "pitiful," every one would perceive such a Fallacy, nor could it be employed but in jest.

This Fallacy cannot in practice be refuted, by stating merely the impossibility of reducing such an argument to the strict Logical form; (unless indeed you are addressing regular Logicians) you must find some way of pointing out the non-correspondence of the terms in question; *e. g.* with respect to the example above, it might be remarked, that we speak of *strong* or *faint* "presumption," but we use no such expression in conjunction with the verb "presume," because the word itself *implies strength*.

No Fallacy is more common in controversy than the present, since in this way the Sophist will often be able to misinterpret the propositions which his opponent admits or maintains, and so employ them against him. Thus in the examples just given, it is natural to conceive one of the Sophist's Premises to have been borrowed from his opponent[*].

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[*] Perhaps a dictionary of such paronymous words as do not regularly correspond in meaning, would be nearly

The present Fallacy is nearly allied to, or rather perhaps may be regarded as a branch of that founded on *etymology; viz.* when a Term is used, at one time, in its customary, and at another, in its etymological sense. Perhaps no example of this can be found that is more extensively and mischievously employed than in the case of the word *representative:* assuming that its right meaning must correspond exactly with the strict and original sense of the verb, "represent," the Sophist persuades the multitude, that a member of the House of Commons is bound to be guided in all points by the opinion of his constituents: and, in short, to be merely their *spokesman:* whereas law and custom, which in this case may be considered as fixing the meaning of the Term, require no such thing, but enjoin the representative to act according to the best of his *own* judgment, and on his own responsibility*.

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as useful as one of synonyms; *i. e.* properly speaking, of *pseudo-synonyms.*

* H. Tooke has furnished a whole magazine of such weapons for any Sophist who may need them, and furnished some specimens of the employment of them. He contends, that it is idle to speak of eternal or immutable "*Truth,*" because the word is derived from to "trow," *i. e.* believe. He might on as good grounds have censured the absurdity of speaking of sending a letter by the "*post,*" because a post, in its primary sense, is a pillar; or have insisted that "Sycophant" can never mean anything but "Fig-shower."

§ 9.

Fallacy of Interrogations.

It is to be observed, that to the head of Ambiguous middle should be referred what is called "*Fallacia plurium Interrogationum,*" which may be named, simply, "the Fallacy of Interrogation;" *viz.* the Fallacy of asking several questions which appear to be but one; so that whatever *one* answer is given, being of course applicable to one only of the implied questions, may be interpreted as applied to the other; the refutation is, of course, to reply *separately* to each question, *i. e.* to detect the ambiguity.

I have said, several "questions which *appear to be but one,*" for else there is no *Fallacy;* such an example, therefore, as "*estne homo animal et lapis?*" which Aldrich gives, is foreign to the matter in hand; for there is nothing unfair in asking two distinct questions (any more than in asserting two distinct propositions) *distinctly and avowedly.*

This Fallacy may be referred, as has been said, to the head of Ambiguous middle. In all Reasoning it is very common to state one of the Premises in form of a question, and when that is admitted, or supposed to be admitted, then to fill up the rest; if then one of the Terms of that question be ambiguous, whichever sense the opponent replies to, the Sophist assumes the *other* sense of the Term in the remaining Premiss. It is therefore very common to state an equivocal argument, in form of a question so worded, that there shall be *little doubt which* reply will be given: but if there *be* such doubt, the Sophist must have *two* Fallacies of equivocation ready; *e. g.* the question "whether anything vicious is expedient," discussed in Cic. *Off.* book iii. (where, by the bye, he seems not a little perplexed with it himself) is of the character in question, from the ambiguity of the word "*expedient,*" which means sometimes, "conducive to temporal prosperity," sometimes, "conducive to the greatest good:" whichever answer therefore was given, the Sophist might have a Fallacy of equivocation founded on this term; *viz.* if the answer be in the negative, his argument, Logically developed, will stand thus,—"what is vicious is not expedient; whatever conduces to the acquisition of wealth and aggrandizement is expedient; therefore it cannot be vicious:" if in the affirmative, then thus,—"whatever is expedient is desirable; something vicious is expedient, therefore desirable."

This kind of Fallacy is frequently employed in such a manner, that the uncertainty shall be, not about the *meaning*, but the *extent* of a Term, *i. e.* whether it is *distributed* or not: *e. g.* "did A B in this case act from such and such a motive?" which may imply either, "was it his *sole* motive?" or "was it *one* of his motives?" in the former case the term "that-which-actuated-A B" is distributed; in the latter, not: now if he acted from a *mixture* of motives, whichever answer you give, may be misrepresented, and thus disproved.

§ 10.

In some cases of ambiguous middle, the Term in question may be considered as having *in itself*, from its own equivocal nature, two significations; (which apparently constitutes the "*Fallacia equivocationis*" of Logical writers;) others again have a middle Term which is ambiguous from the context, *i. e.* from what is *understood in conjunction* with it. This division will be found useful, though it is impossible to draw the line accurately in it. The elliptical character of ordinary discourse causes many Terms to become practically ambiguous, which yet are not themselves employed in *different senses*, but with different *applications*, which are *understood*. Thus, "The Faith" would be used by a Christian writer to denote the Christian Faith, and by a Mussulman, the Mahometan; yet the word Faith has not in these cases, of *itself*, two different significations. So ἐκλεκτοί "elect," or "chosen," is sometimes applied to such as are "chosen," to certain *privileges* and *advantages;* (as the Israelites were, though "they were overthrown in the wilderness" for their disobedience; and as all Christians are frequently called in the New Testament) sometimes again to those who are "chosen," as fit to receive a *final reward,* having made a right use of those advantages; as when our Lord says, "many are called, but few chosen.*"

There are various ways in which words come to have two meanings: 1st. by *accident;* (*i. e.* when there is no perceptible connection between the two meanings) as "*light*" signifies both the contrary to "heavy," and the contrary to "dark." Thus, such proper names as John or Thomas, *&c.* which happen to belong to several different persons, are ambiguous, because they have a different signification in each case where they are applied. Words which fall under this first head are what are the most strictly called *equivocal*.

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* What Logicians have mentioned under the title of "Fallacia amphiboliæ" is referable to this last class; though in real practice it is not very likely to occur. An *amphibolous* sentence is one that is capable of two meanings, not from the double sense of any of the words, but from its admitting of a double *construction:* as in the instance Aldrich gives, which is untranslatable; "quod tangitur a Socrate, illud sentit:" where "illud" may be taken either as the nominative or accusative. So also the celebrated response of the oracle; "Aio te, Æacida, Romanos vincere posse:" which closely resembles (as Shakspeare remarks) the witch-prophecy, "The Duke yet lives that Henry shall depose." A similar effect is produced by what the French call "construction louche," a squinting construction; *i. e.* where some word or words may be referred either to the former or latter clause of the sentence; of which an instance occurs in the rubric prefixed to the service of the 30th January. "If this day shall happen to be Sunday [this form of prayer shall be used] and the fast kept the next day following:" the clause in brackets may belong either to the former or the latter part of the sentence. In the Nicene Creed, the words "by whom all things were made," are grammatically referable either to the Father or the Son.

First and second intention.

2dly. There are several terms in the use of which it is necessary to notice the distinction between *first* and *second intention**. The "first-intention" of a Term, (according to the usual acceptation of this phrase) is a certain *vague and general* signification of it, as opposed to one more *precise* and *limited*, which it bears in some particular art, science, or system, and which is called its "second-intention." Thus, among farmers, in some parts, the word "beast" is applied particularly and especially to the ox kind; and "bird," in the language of many sportsmen, is in like manner appropriated to the partridge: the common and general acceptation (which every one is well acquainted with) of each of those two words, is the First-intention of each; the other, its Second-intention.

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* I am aware that there exists another opinion as to the meaning of the phrase "second-intention;" and that Aldrich is understood by some persons to mean (as indeed his expression may very well be understood to imply) that *every predicable* must necessarily be employed in the Second-intention. I do not undertake to combat the doctrine alluded to, because I must confess that, after the most patient attention devoted to the explanations given of it, I have never been able to comprehend what it is that is meant by it. It is one, however, which, whether sound or unsound, appears not to be connected with any Logical processes, and therefore may be safely passed by on the present occasion.

For some remarks on the Second-intention of the word "Species," when applied to *organized beings* (*viz.* as denoting those plants or animals, which it is conceived may have descended from a common stock) see the subjoined Dissertation, Ch. v. § 1.

It is evident that a Term may have several Second-intentions, according to the several systems into which it is introduced, and of which it is one of the technical Terms: thus "line" signifies, in the Art-military, a certain form of drawing up ships or troops: in Geography, a certain division of the earth; to the fisherman, a string to catch fish, *&c. &c.*; all which are so many distinct Second-intentions, in each of which there is a certain signification "of extension in length" which constitutes the First-intention, and which corresponds pretty nearly with the employment of the Term in Mathematics*.

It will sometimes happen, that a Term shall be employed always in some one or other of its second intentions; and never, strictly, in the first, though that first intention is a *part of its signification* in each case. It is evident, that the utmost care is requisite to avoid confounding together, either the first and second intentions, or the different second intentions with each other.

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* In a few instances the Second-intention, or philosophical employment of a Term, is more *extensive* than the First-intention, or popular use: thus "affection" is limited in popular use to "love:" and "flower," to those which have conspicuous petals.

Resemblance and analogy. 3dly. When two or more things are connected by *resemblance* or *analogy*, they will frequently have the same name. Thus a "*blade* of grass," and the contrivance in building called a "*dove-tail*," are so called from their *resemblance* to the *blade** of a sword, and the *tail* of a real dove. But two things may be connected by *analogy*, though they have in *themselves* no *resemblance*: for analogy is the resemblance of *ratios* (or relations): thus, as a *sweet* taste *gratifies* the palate, so does a *sweet* sound *gratify* the ear; and hence the same word, "*sweet*," is applied to both, though no flavour can resemble a sound in itself: so, the *leg of a table* does not resemble that of an animal; nor the foot of a mountain that of an animal; but *the leg answers the same purpose* to the table, as the leg of an animal to that animal; the foot of a mountain has the *same situation* relatively to the mountain, as the foot of an animal to the animal; this analogy therefore may be expressed like a mathematical analogy (or proportion) "leg: animal:: supporting stick : table."

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* Unless, indeed, the primary application of the Term be to the leaf of grass, and the secondary to cutting instruments, which is perhaps more probable; but the question is unimportant in the present case.

In all these cases (of this 3d head) one of the meanings of the word is called by Logicians *proper*, *i. e.* original or primary; the other *improper*, secondary, or transferred: thus, *sweet* is originally and properly applied to *tastes*; secondarily and *improperly* (*i. e.* by analogy) to sounds: thus also, *dove-tail* is applied secondarily (though not by analogy, but by direct resemblance) to the contrivance in building so called. When the secondary meaning of a word is founded on some *fanciful* analogy, and especially when it is introduced for ornament sake, we call this a *metaphor;* as when we speak of "a ship's *ploughing* the deep." The turning up of the surface being essential indeed to the plough, but accidental only to the ship; but if the analogy be a more important and essential one, and especially if we have no other word to express our meaning but this transferred one, we then call it *merely* an *analogous* word (though the *metaphor* is analogous also) *e. g.* one would hardly call it *metaphorical* or *figurative* language to speak of the leg of a table, or mouth of a river*.

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* See Dr. Copleston's account of Analogy in the notes to his "four Discourses."

Connection of time or place.

4thly. Several things may be called by the same name (though they have no connection of resemblance or analogy) from being *connected by vicinity of time or place;* under which head will come the connection of *cause and effect,* or of *part and whole, &c.* Thus a *door* signifies both an opening in the wall (more strictly called the *door-way*) and a board which closes it; which are things neither similar nor analogous. When I say, "the rose *smells* sweet;" and "I *smell* the rose;" the word "smell" has two meanings: in the latter sentence, I am speaking of a certain *sensation* in my own mind; in the former, of a certain *quality* in the flower, which produces that sensation, but which of course cannot in the least resemble it: and here the word *smell* is applied with equal propriety to both. Thus we speak of Homer, for "the works of Homer;" and this is a secondary or transferred meaning: and so it is when we say, "a good shot," for a good marksman; but the word "*shot*" has two other meanings, which are both equally proper; *viz. the thing put into a gun* in order to be discharged from it, and the *act* of discharging it.

Thus, "*learning*" signifies either the act of acquiring knowledge, or the knowledge itself; *e. g.* "he neglects his learning;" "Johnson was a man of learning." "*Possession*" is ambiguous in the same manner, and a multitude of others.

Much confusion often arises from ambiguity of this kind, when unperceived; nor is there any point in which the copiousness and consequent precision of the Greek language, is more to be admired than in its distinct terms for expressing an act, and the result of that act; *e. g.* ϖϱαξις, "the doing of anything;" ϖϱαγμα, the "thing done;" so, δοσις and δωρον, ληψις and λημμα, *&c.*

It will very often happen, that two of the meanings of a word will have no connection with one another, but will each have some connection with a third. Thus "martyr" originally signified a *witness;* thence it was applied to those who *suffered* in bearing testimony to Christianity; and thence again it is often applied to "sufferers" in general: the first and third significations are not the least connected. Thus "*post*" signifies originally a pillar, (*postum,* from *pono*) then a distance marked out by posts; and then the carriages, messengers, *&c.* that travelled over this distance. Innumerable other ambiguities might be brought under this fourth head, which indeed comprehends all the cases which do not fall under the three others.

The remedy for ambiguity is a *Definition* of the Term which is suspected of being used in two senses; *viz.* a *Nominal,* not necessarily a *Real* Definition: as was remarked in the Compendium.

But here it may be proper to remark, that for the avoiding of Fallacy, or of verbal controversy, it is only requisite that the term should be employed uniformly in the same sense *as far as the existing question is concerned;* thus, two persons might, in discussing the question, whether Cæsar was a GREAT man, have some difference in their acceptation of the epithet "great," which would be non-essential to that question; *e. g.* one of them might understand by it nothing more than eminent intellectual and moral *qualities;* while the other might conceive it to imply the performance of splendid *actions:* this abstract difference of meaning would not produce any disagreement in the existing question, because both those circumstances are united in the case of Cæsar; but if one (and not the other) of the parties understood the epithet "great" to imply pure patriotism, GENEROSITY of character, &c. then there *would* be a disagreement as to the application of the Term, even between those who might think alike of Cæsar's character. Definition, the specific for ambiguity, is to be employed, and demanded, with a view to this principle; it is sufficient on each occasion to define a Term *as far as regards the question in hand.*

§ 11.

Of those cases where the ambiguity arises *from the context,* there are several species; some of which Logicians have enumerated, but have neglected to refer them, in the first place, to one common class (*viz.* the one under which they are here placed;) and have even arranged some under the head of Fallacies "*in dictione,*" and others under that of "*extra dictionem.*"

Fallacy of Division and Composition.

We may consider, as the first of these species, the Fallacy of "Division" and that of "Composition," taken together, since in each of these the middle Term is used in one Premiss *collectively*, in the other, *distributively:* if the former of these is the major Premiss, and the latter, the minor, this is called the "Fallacy of Division;" the Term which is first taken collectively being afterwards divided; and *vice versâ.* The ordinary examples are such as these; "All the angles of a triangle are equal to two right angles: A B C is an angle of a triangle; therefore A B C is equal to two right angles." "Five is one number; three and two are five; therefore three and two are one number;" or, "three and two are two numbers, five is three and two, therefore five is two numbers:" it is manifest that the middle Term, three and two (in this last example) is ambiguous, signifying, in the major Premiss, "taken distinctly," in the minor, "taken together:" and so of the rest.

To this head may be referred the Fallacy by which men have sometimes been led to admit, or pretend to admit, the doctrine of Necessity;

e. g. "he who necessarily goes or stays (*i. e.* in reality, '*who necessarily goes*, or who *necessarily stays*') is not a free agent; you must necessarily go or stay (*i. e.* 'you must necessarily *take the alternative*') therefore you are not a free agent." Such also is the Fallacy which probably operates on most adventurers in lotteries; *e. g.* "the gaining of a high prize is no uncommon occurrence; and what is no uncommon occurrence may reasonably be expected; therefore the gaining of a high prize may reasonably be expected:" the Conclusion, when applied to the individual (as in practice it is), must be understood in the sense of "reasonably expected *by a certain individual*;" therefore for the major Premiss to be true the middle Term must be understood to mean, "no uncommon occurrence to some one *particular* person;" whereas for the minor (which has been placed first) to be true, you must understand it of "no uncommon occurrence to *some one or other*;" and thus you will have the Fallacy of Composition.

There is no Fallacy more common, or more likely to deceive, than the one now before us: the form in which it is most usually employed, is, to establish some truth, *separately*, concerning *each single* member of a certain class, and thence to infer the same of the *whole collectively*: thus some infidels have laboured to prove concerning *some one* of our Lord's miracles, that it might have been the result of an accidental conjuncture of natural circumstances: next, they endeavour to prove the same concerning *another;* and so on; and thence infer that *all* of them might have been so. They might argue in like manner, that because it is not very improbable one may throw sixes in any one out of a hundred throws, therefore it is no more improbable that one may throw sixes a hundred times running.

This Fallacy may often be considered as turning on the ambiguity of the word "all;" which may easily be dispelled by substituting for it the word "each" or "every," where that is its signification; *e. g.* "all these trees make a thick shade," is ambiguous, meaning, either, "every one of them," or "all together."

This is a Fallacy with which men are extremely apt to deceive *themselves:* for when a multitude of particulars are presented to the mind, many are too weak or too indolent to take a comprehensive view of them; but confine their attention to each single point, by turns; and then decide, infer, and act, accordingly: *e. g.* the imprudent spendthrift, finding that he is able to afford this, *or* that, *or* the other expense, forgets that *all of them together* will ruin him.

To the same head may be reduced that fallacious reasoning by which men vindicate themselves to their own conscience and to others, for the neglect of those *undefined* duties, which though indispensable, and therefore not left to our choice *whether* we will practise them or not, are left to our discretion as to the *mode*, and the particular occasions, of practising them; *e. g.* "I am not bound to contribute to this charity in particular; nor to that; nor to the other:" the *practical* conclusion which they draw, is, that *all* charity may be dispensed with.

As men are apt to forget that any two circumstances (not naturally connected) are more rarely to be met with combined than separate, though they be not at all incompatible; so also they are apt to imagine, from finding that they *are* rarely combined, that there *is* an incompatibility; *e. g.* if the chances are ten to one against a man's possessing strong reasoning powers, and ten to one against exquisite taste, the chances against the combination of the two (supposing them neither connected nor opposed) will be a hundred to one. Many, therefore, from finding them so rarely united, will infer that they are in some measure incompatible; which Fallacy may easily be exposed in the form of Undistributed middle: "qualities unfriendly to each other are rarely combined; excellence in the reasoning powers and in taste are rarely combined; therefore they are qualities unfriendly to each other."

§ 12.

Fallacia accidentis.

The other kind of ambiguity arising from the context, and which is the last case of Ambiguous middle that I shall notice, is the "*fallacia accidentis,*" together with its converse, "*fallacia a dicto secundum quid ad dictum simpliciter;*" in each of which the middle Term is used, in one Premiss to signify something considered simply, in itself, and as to its essence; and in the other Premiss, so as to imply that its Accidents are taken into account with it: as in the well-known example, "what is bought in the market is eaten; raw meat is bought in the market; therefore raw meat is eaten." Here the middle has understood in conjunction with it, in the major Premiss "*as to its substance merely:*" in the minor, "*as to its condition and circumstances.*"

To this head, perhaps, as well as to any, may be referred the Fallacies which are frequently founded on the occasional, partial, and temporary variations in the acceptation of some Term, arising from circumstances of person, time, and place, which will occasion something to be understood in conjunction with it beyond its strict literal signification; *e. g.* the phrase "Protestant ascendancy," having become a kind of watch-word or gathering-cry of a party, the expression of good wishes for it would commonly imply an adherence to certain measures not literally expressed by the words; to assume therefore that one is unfriendly to "Protestant ascendancy" in the literal sense, because he has declared himself unfriendly to it when implying and connected with such and such other sentiments, is a gross Fallacy; and such an one as perhaps the authors of the above would much object to, if it were assumed of *them* that they were adverse to "the cause of liberty throughout the world," and to "a fair representation of the people," from their objecting to join with the members of a factious party in the expression of such sentiments.

Such Fallacies may fairly be referred to the present head.

§ 13.

Begging the question.

Of the Non-logical (or material) Fallacies: and first, of "begging the question;" *Petitio Principii.*

The indistinct and unphilosophical account which has been given by Logical writers of the Fallacy of "*non causa,*" and that of "*petitio principii,*" makes it very difficult to ascertain wherein they conceived them to differ, and what, according to them, is the nature of each; without therefore professing to conform exactly to their meaning, and with a view to distinctness only, which is the main point, let us confine the name "*petitio principii*" to those cases in which the Premiss either appears manifestly to be the same as the Conclusion, or is actually proved from the Conclusion, or is such as would naturally and properly so be proved; (as if one should attempt to prove the being of a God from the authority of Holy-writ;) and to the other class be referred all other cases, in which the Premiss (whether the expressed or the suppressed one) is either proved false, or has no sufficient claim to be received as true. Let it however be observed, that in such cases (apparently) as this, we must not too hastily pronounce the argument fallacious; for it may be perfectly fair at the *commencement* of an argument to assume a Premiss that is not more evident than the Conclusion, or is even ever so paradoxical, provided you proceed to prove fairly that Premiss; and in like manner it is both usual and fair to *begin* by deducing your Conclusion from a Premiss exactly equivalent to it; which is merely throwing the proposition in question into the form in which it will be most conveniently proved. Arguing in a Circle, however, must necessarily be unfair; though it frequently is practised undesignedly; *e. g.* some Mechanicians attempt to prove, (what they ought to lay down as a probable but doubtful hypothesis,) that every particle of matter gravitates equally; "why?" because those bodies which contain more particles ever gravitate more strongly, *i. e.* are heavier: "but (it may be urged) those which are heaviest are not always more bulky;" "no, but still they contain more particles, though more closely condensed;" "how do you know that?" "because they are heavier;" "how does that prove it?" "because all particles of matter gravitating equally, that mass which is specifically the heavier must needs have the more of them in the same space."

Obliquity and disguise being of course most important to the success of the *petitio principii* as well as of other Fallacies, the Sophist will in general either have recourse to the circle, or else not venture to *state* distinctly his assumption of the point in question, but will rather assert some other proposition which *implies* it; thus keeping out of sight (as a dexterous thief does stolen goods) the point in question, at the very moment when he is taking it for granted: hence the frequent union of this Fallacy with "*ignoratio elenchi*:" vide § 15. The English language is perhaps the more suitable for the Fallacy of *petitio principii*, from its being formed from two distinct languages, and thus abounding in synonymous expressions which have no resemblance in sound, and no connection in etymology; so that a Sophist may bring forward a proposition expressed in words of Saxon origin, and give as a reason for it, the very same proposition stated in words of Norman origin; *e. g.* "to allow every man an unbounded freedom of speech must always be, on the whole, advantageous to the State; for it is highly conducive to the interest of the Community, that each individual should enjoy a liberty perfectly unlimited, of expressing his sentiments."

§ 14.

Undue assumption.

The next head is, the falsity, or, at least, undue assumption, of a Premiss, when it is not equivalent to, or dependent on, the Conclusion; which, as has been before said, seems to correspond nearly with the meaning of Logicians, when they speak of "*non causa pro causa:*" this name indeed would seem to imply a much narrower class: there being one species of arguments which are *from cause to effect;* in which, of course, two things are necessary; 1st, the *sufficiency* of the cause, 2d, its establishment; these are the two Premises; if therefore the *former* be unduly assumed, we are arguing from that which is *not* a sufficient cause as if it *were* so: *e. g.* as if one should contend from such a man's having been unjust or cruel, that he will certainly be visited with some heavy temporal judgment, and come to an untimely end. In this instance the Sophist, from having assumed, in the Premiss, the (granted) existence of a pretended cause, infers in the conclusion the existence of the pretended effect, which we have supposed to be the Question; or *vice versâ*, the pretended effect may be employed to establish the cause; *e. g.* inferring sinfulness from temporal calamity: but when *both* the pretended cause and effect are *granted*, *i. e.* granted to *exist*, then the Sophist will infer something from their pretended *connection*; *i. e.* he will assume as a Premiss, that "of these two admitted facts, the one is the cause of the other:" as the opponents of the Reformation assumed that it was the cause of the troubles which took place at that period, and thence inferred that it was an evil. In like manner, nothing is more common than to hear a person state confidently, as from his own experience, that such and such a patient *was cured* by this or that medicine: whereas all that he absolutely *knows*, is that he took the medicine, and that he recovered. Such an argument as either of these might strictly be called "*non causâ pro causa*;" but it is not probable that the Logical writers intended any such limitation, (which indeed would be wholly unnecessary and impertinent,) but rather that they were confounding together *cause and reason;* the sequence of *Conclusion* from *Premises* being perpetually mistaken for that of *effect* from physical *cause**. It may be better, therefore, to drop the name which tends to perpetuate this confusion, and simply to state (when such is the case) that the Premiss is unduly assumed; *i. e.* without being either self-evident, or satisfactorily proved.

The contrivances by which men may deceive themselves or others, in assuming Premises unduly, *so that that undue assumption shall not be perceived,* (for it is in *this* the *Fallacy* consists) are of course infinite. Sometimes (as was before observed) the *doubtful Premiss* is *suppressed,* as if it were too evident to need being proved, or even stated, and as if the whole question turned on the establishment of the other Premiss. Thus H. Tooke proves, by an immense induction, that all particles were originally nouns or verbs; and thence concludes, that in reality they are so still, and that the ordinary division of the parts of speech is absurd; keeping out of sight, as self-evident, the other Premiss, which is absolutely false; *viz.* that the meaning and force of a word, now and for ever, must be that which it, or its root, originally bore.

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* See Appendix, No. I. article *Reason.*

Sometimes men are shamed into admitting an unfounded assertion, by being assured, that it is so evident, it would argue great weakness to doubt it. In general, however, the more skilful Sophist will avoid a *direct assertion* of what he means unduly to assume; because that might direct the reader's attention to the consideration of the question whether it be *true* or not; since that which is indisputable does not so often need to be asserted: it succeeds better, therefore, if you *allude* to the proposition, as something *curious* and remarkable; just as the Royal-Society were imposed on by being asked to *account for* the fact that a vessel of water received no addition to its weight by a live fish put into it; while they were seeking for the *cause*, they forgot to ascertain the *fact*, and thus admitted without suspicion a mere fiction. Thus an eminent Scotch writer, instead of *asserting* that "the advocates of Logic have been worsted and driven from the field in every controversy," (an assertion which, if made, would have been the more readily ascertained to be perfectly groundless,) merely *observes*, that "it is a circumstance not a little *remarkable*."

Fallacy of references.

One of the many contrivances employed for this purpose, is what may be called the "Fallacy of *references*;" which is particularly common in popular theological works. It is of course a circumstance which adds great weight to any assertion, that it shall seem to be supported by many passages of Scripture: now when a writer can find few or none of these, that distinctly and decidedly favour his opinion, he may at least find many which may be conceived capable of being so understood, or which, in some way or other, remotely relate to the subject; but if these texts were inserted at length, it would be at once perceived how little they bear on the question; the usual artifice therefore is, to give merely *references* to them; trusting that nineteen out of twenty readers will never take the trouble of turning to the passages, but, taking for granted that they afford, each, some degree of confirmation to what is maintained, will be overawed by seeing every assertion supported, as they suppose, by five or six Scripture-texts.

Frequently the Fallacy of *ignoratio elenchi* is called in to the aid of this; *i. e.* the Premiss is assumed on the ground of another proposition, *somewhat like it,* having been proved. Thus, in arguing by Example, *&c.* the *parallelism* of two cases is often assumed from their being in *some respects* alike, though perhaps they differ in the very point which is *essential* to the argument; *e. g.* from the circumstance that some men of humble station, who have been well educated, are apt to think themselves above low drudgery, it is argued, that universal education of the lower orders would beget general idleness: this argument rests, of course, on the assumption of *parallelism* in the two cases, *viz.* the past, and the future; whereas there is a circumstance that is absolutely essential, in which they differ; for when education is *universal* it must cease to be a *distinction;* which is probably the very circumstance that renders men too proud for their work.

This very same Fallacy is often resorted to on the opposite side: an attempt is made to invalidate some argument from Example, by pointing out a difference between the two cases, though they agree in everything that is essential to the question.

Lastly, it may be here remarked, conformably with what has been formerly said, that it will often be left to your choice whether to refer this or that fallacious argument to the present head, or that of Ambiguous middle; "*if* the middle term is here used in *this* sense, there is an *ambiguity; if* in *that* sense, the proposition is *false.*"

§ 15.

Irrelevant Conclusion.

The last kind of Fallacy to be discussed is that of Irrelevant Conclusion, commonly called *ignoratio elenchi*. Various kinds of propositions are, according to the occasion, substituted for the one of which proof is required.

Sometimes the Particular for the Universal; sometimes a proposition with different Terms: and various are the contrivances employed to effect and to conceal this substitution, and to make the Conclusion which the Sophist has drawn, answer, practically, the same purpose as the one he ought to have established. I say, "practically the same purpose," because it will very often happen that some *emotion* will be excited—some sentiment impressed on the mind —(by a dexterous employment of this Fallacy) such as shall bring men into the *disposition* requisite for your purpose, though they may not have assented to, or even stated distinctly in their own minds, the *proposition* which it was your business to establish. Thus if a Sophist has to defend one who has been guilty of some *serious* offence, which he wishes to extenuate, though he is unable distinctly to prove that it is not such, yet if he can succeed in *making the audience laugh* at some casual matter, he has gained practically the same point. So also if any one has pointed out the extenuating cirhorrence. Thus, when in a discussion one party vindicates, on the ground of general expediency, a particular instance of resistance to Government in a case of intolerable oppression, the opponent may gravely maintain, that "we ought not to do evil that good may come:" a proposition which of course had never been denied, the point in dispute being "whether resistance in this particular case *were* doing evil or not." In this example it is to be remarked (and the remark will apply very generally) that the Fallacy of *petitio principii* is combined with that of *ignoratio elenchi*, which is a very common and successful practice; *viz.* the Sophist proves, or disproves, not the proposition which is really in question, but one which so implies it as to proceed on the supposition that it is already decided, and can admit of no doubt; by this means his "assumption of the point in question" is so indirect and oblique, that it may easily escape notice; and he thus establishes, practically, his Conclusion, at the very moment when he is withdrawing your attention from it to another question.

There are certain kinds of argument recounted and named by Logical writers, which we should by no means universally call Fallacies; but which, *when unfairly* used, and *so far as they are* fallacious, may very well be re-

Argumentum ad hominem, &c.

ferred to the present head; such as the "*argumentum ad hominem,*" or personal argument, "*argumentum ad verecundiam,*" "*argumentum ad populum,*" *&c.* all of them regarded as contradistinguished from "*argumentum ad rem,*" or according to others (meaning probably the very same thing) "*ad judicium.*" These have all been described in the lax and popular language before alluded to, but not scientifically: the "*argumentum ad hominem,*" they say, "is addressed to the peculiar circumstances, character, avowed opinions, or past conduct of the individual, and therefore has a reference to him only, and does not bear directly and absolutely on the real question, as the '*argumentum ad rem*' does:" in like manner, the "*argumentum ad verecundiam*" is described as an appeal to our reverence for some respected authority, some venerable institution, *&c.* and the "*argumentum ad populum,*" as an appeal to the prejudices, passions, *&c.* of the multitude; and so of the rest. Along with these is usually enumerated "*argumentum ad ignorantiam,*" which is here omitted, as being evidently nothing more than the employment of *some* kind of Fallacy, in the widest sense of that word, towards such as are likely to be deceived by it. It appears then (to speak rather more technically) that in the "*argumentum ad hominem*" the conclusion which actually is established, is not the absolute and general one in question, but relative and particular; *viz.* not that "such and such is the fact," but that "*this man* is bound to admit it, in conformity to his principles of Reasoning, or in consistency with his own conduct, situation," *&c.** Such a Conclusion it is often both allowable and necessary to establish, in order to silence those who will not yield to fair general argument; or to convince those whose weakness and prejudices would not allow them to assign to it its due weight: it is thus that our Lord on many occasions silences the cavils of the Jews; as in the vindication of healing on the Sabbath, which is paralleled by the authorized practice of drawing out a beast that has fallen into a pit. All this, as we have said, is perfectly fair, provided it be done plainly, and *avowedly;* but if you attempt to *substitute* this partial and relative Conclusion for a more general one—if you triumph as having established your proposition absolutely and universally, from having established it, in reality, only as far as it relates to your opponent, then you are guilty of a Fallacy of the kind which we are now treating of: your Conclusion is not in reality that which was, by your own account, proposed to be proved: the fallaciousness depends upon the *deceit* or attempt to deceive. The same observations will *apply* to "*argumentum ad verecundiam,*" and the rest.

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* The "argumentum ad hominem" will often have the effect of shifting the *burden of proof*, not unjustly, to the adversary. A common instance is the defence, certainly the readiest and most concise, frequently urged by the Sportsman, when accused of barbarity in sacrificing unoffending hares or trout to his amusement: he replies, as he may safely do, to most of his assailants, "why do you feed on the flesh of animals?" and that this answer presses hard, is manifested by its being usually opposed by a palpable falsehood; viz. that the animals which are killed for food are sacrificed to our *necessities;* though not only men *can*, but a large proportion (probably a great majority) of the human race actually *do*, subsist in health and vigour without flesh diet; and the earth would support a much greater human population were such a practice universal. When shamed out of this argument they sometimes urge that the brute creation would overrun the earth, if we did not kill them for food; an argument, which, if it were valid at all, would not justify their feeding on *fish ;* though, if fairly followed up, it *would* justify Swift's proposal for keeping down the excessive population of Ireland. The true reason, *viz.* that they eat flesh for the gratification of the palate, and have a taste for the pleasures of the table, though not for the sports of the field, is one which they do not like to assign.

It is very common to employ an ambiguous Term for the purpose of introducing the Fallacy of irrelevant Conclusion: *i. e.* when you cannot prove your proposition in the sense in which it was maintained, to prove it in some other sense; *e. g.* these who contend against the efficacy of *faith,* usually employ that word in their arguments in the sense of mere belief, unaccompanied with any moral or practical result, but considered as a mere intellectual process; and when they have thus proved their Conclusion, they oppose it to one in which the word is used in a widely different sense*.

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* "When the occasion or Object in question is not such as calls for, or as is likely to excite in those particular readers or hearers, the emotions required, it is a common Rhetorical artifice to turn their attention to some object which *will* call forth these feelings; and when they are too much excited to be capable of judging calmly, it will not be difficult to turn their Passions, once roused, in the direction required, and to make them view the case before them in a very different light. When the metal is heated it may easily be moulded into the desired form. Thus vehement indignation against some crime, may be directed against a person who has not been proved guilty of it; and vague declamations against corruption, oppression, *&c.* or against the mischiefs of anarchy; with high-flown panegyrics on liberty, rights of man, *&c.* or on social order, justice, the constitution, law, religion, *&c.* will gradually lead the hearers to take for granted, without proof, that the measure proposed will lead to these evils or these advantages; and it will in consequence become the object of groundless abhorrence or admiration. For the very utterance of such words as have a multitude of what may be called *stimulating* ideas associated with them, will operate like a charm on the minds, especially of the ignorant and unthinking, and raise such a tumult of feeling, as will effectually blind their judgment; so that a string of vague abuse or panegyric will often have the effect of a train of sound Argument. This artifice falls under the head of 'Irrelevant Conclusion,' or *ignoratio elenchi*, mentioned in the Treatise on *Fallacies*. Mr. Bentham has treated of the employment of these 'passion-kindling appellatives,' as he calls them, under the head of 'Fallacies of Confusion,' in his work entitled the *Book of Fallacies*. Many other observations also occurring in that Treatise, will be found very nearly to coincide with that which has been said in the third chapter of the Article on Logic just referred to; though not

§ 16.

The Fallacy of *ignoratio elenchi* is nowhere more common than in protracted controversy, when one of the parties, after having attempted in vain to maintain his position, *shifts his ground* as covertly as possible to another, instead of honestly giving up the point. An instance occurs in an attack made on the system pursued at one of our Universities. The objectors, finding themselves unable to maintain their

so strictly tried by Logical rules. Of many popular Sophisms he has given (though in a singular manner) an able exposure; and of many others, unfortunately, the most striking exemplifications may be found in his own reasonings; in which *petitio principii*, in particular, occurs perpetually; as well as the one now before us,—the employment of vituperative, or as he calls it 'Dyslogistic' language: that also which we there described as the 'Fallacy of Objections,' (which might be called by a lover of new-coined epithets, in language similar to that often employed by Mr. Bentham, a reverse-of-wrong-for-right-mistaking Fallacy) is skilfully described, and but too often employed; as if, because existing abuses are maintained by those who have an interest in *keeping* what they have, no apprehension were to be entertained of new evils being introduced through the interested conduct of those who wish to *acquire* what they have not; and as if, because many are misled by a blind veneration for 'Authority,' and the 'Wisdom of our Ancestors,' there did not exist also, as antagonist muscles, as it were, to these, an equally blind craving after novelty for its own sake, and a veneration for the ingenuity of one's own inventions."—*Ency. Met.* vol. i. p. 265, art. *Rhetoric*, ch. ii. § 6.

charge of the *present* neglect of Mathematics in that place, (to which neglect they attributed the late *general decline* in those studies) shifted their ground, and contended that that University was *never* famous for Mathematicians: which not only does not establish, but absolutely overthrows their own original assertion; for if it *never* succeeded in those pursuits, it could not have caused their late *decline*.

Fallacy of combating the two Premises alternately.

A practice of this nature is common in oral controversy especially; *viz.* that of combating *both* your opponent's Premises *alternately*, and shifting the attack from the one to the other, without waiting to have either of them decided upon before you quit it.

It has been remarked above, that one class of the propositions that may be, in this Fallacy, substituted for the one required, is the *particular* for the *universal:* nearly akin to this is the very common case of proving something to be *possible* when it ought to have been proved highly *probable;* or *probable,* when it ought to have been proved *necessary;* or, which comes to the very same, proving it to be *not necessary,* when it should have been proved *not probable;* or *improbable,* when it should have been proved *impossible.* Aristotle (*in Rhet.* book ii.) complains of this last branch of the Fallacy, as giving an undue advantage to the respondent; many a guilty person owes his acquittal to this; the jury considering that the evidence brought does not demonstrate the absolute impossibility of his being innocent, though perhaps the chances are innumerable against it.

§ 17.

Fallacy of Objections.

Similar to this case is that which may be called the *Fallacy of objections: i. e.* showing that *there are* objections against some plan, theory, or system, and thence inferring that it should be rejected; when that which ought to have been proved is, that there are *more*, or *stronger* objections, against the receiving than the rejecting of it. This is the main, and almost universal Fallacy of infidels, and is that of which men should be first and principally warned. This is also the strong hold of bigoted anti-innovators, who oppose all reforms and alterations indiscriminately; for there never was, nor will be, any plan executed or proposed, against which strong and even unanswerable objections may not be urged; so that unless the opposite objections be set in the balance on the other side, we can never advance a step. "There are objections," said Dr. Johnson, "against a *plenum*, and objections against a *vacuum;* but one of them must be true*."

The very same Fallacy indeed is employed on the other side, by those who are for overthrowing whatever is established as soon as they can prove an objection against it, without considering whether more and weightier objections may not lie against their own schemes:

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* This is, as has been said, the principal engine employed by the adversaries of our Faith: they find numerous "objections" against various parts of Scripture; to some of which no satisfactory answer can be given; and the incautious hearer is apt, while his attention is fixed on these, to forget that there are infinitely more, and stronger objections against the supposition that the Christian Religion is of *human* origin; and that where we cannot answer all objections, we are bound in reason and in candour to adopt the hypothesis which labours under the least. That the case is as I have stated, I am authorized to assume, from this circumstance; that *no complete and consistent account has ever been given of the manner in which the Christian Religion, supposing it a human contrivance, could have arisen and prevailed* as it did. And yet this may obviously be demanded with the utmost fairness, of those who deny its divine origin. The Religion exists: that is the phenomenon: those who will not allow it to have come from God, are bound to solve the phenomenon on some other hypothesis less open to objections: they are not indeed called on to prove that it *actually did* arise in this or that way; but to suggest (consistently with acknowledged facts) some probable way in which it *may* have arisen, reconcileable with all the circumstances of the case. That infidels have never done this, though they have had near 2000 years to try, amounts to a confession that no such hypothesis can be devised, which will not be open to greater objections than lie against Christianity.

but their opponents have this decided advantage over them, that they can urge with great plausibility, "we do not call upon you to *reject* at once whatever is objected to, but merely to *suspend your judgment,* and not come to a decision as long as there are reasons on both sides:" now since there always *will be* reasons on both sides, this *non*-decision is practically the very same thing as a *decision in favour of the existing state* of things; the *delay* of trial becomes equivalent to an *acquittal**.

§ 18.

Fallacy of proving a part of the question.

Another form of *ignoratio elenchi,* which is also rather the more serviceable on the side of the respondent, is, to prove or disprove *some part* of that which is required, and dwell on *that,* suppressing all the rest.

Thus, if a University is charged with cultivating *only* the mere elements of Mathematics, and in reply a list of the books studied there is produced, should even *any one* of those books be *not elementary,* the charge is in fairness refuted; but the Sophist may then earnestly contend that *some* of those books *are* elementary; and thus keep out of sight the real question, *viz.* whether they are *all* so. This is the great art of the *answerer* of a book: suppose the main positions in any work to be irrefragable, it will be strange if some illustration of them, or some subordinate part in short, will not admit of a plausible objection; the opponent then joins issue on one of these incidental questions, and comes forward with "a Reply" to such and such a work.

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* "Not to resolve, is to resolve." Bacon.

How happy it is for mankind that in the most momentous concerns of life their decision is generally formed *for* them by external circumstances; which thus saves them not only from the perplexity of doubt and the danger of delay, but also from the pain of regret; since we acquiesce much more cheerfully in that which is unavoidable.

Hence the danger of ever advancing more than can be well maintained; since the refutation of *that* will often quash the whole: a guilty person may often escape by having too much laid to his charge; so he may also by having too much evidence against him, *i. e.* some that is not in itself satisfactory: thus, a prisoner may sometimes obtain acquittal by showing that one of the witnesses against him is an infamous informer and spy; though perhaps if that part of the evidence had been omitted, the rest would have been sufficient for conviction.

Cases of this nature might very well be referred also to the Fallacy formerly mentioned, of inferring the Falsity of the Conclusion from the Falsity of a Premiss; which indeed is very closely allied to the present Fallacy: the real question is "whether or not this Conclusion *ought to be admitted;*" the Sophist confines himself to the question, "whether or not it is *established by this particular argument;*" leaving it to be inferred by the audience, if he has carried his point as to the latter question, that the former is thereby decided.

§ 19.

Suppressed Conclusion.

It will readily be perceived that nothing is less conducive to the success of the Fallacy in question than to state clearly, in the outset, either the proposition you are about to prove, or that which you ought to prove; it answers best to *begin* with the *Premises,* and to introduce a pretty long chain of argument before you arrive at the Conclusion. The careless hearer takes for granted, at the beginning, that this chain will lead to the Conclusion required; and by the time you are come to the end, he is ready to take for granted that the Conclusion which you draw *is* the one required; his idea of the question having gradually become indistinct. This Fallacy is greatly aided by the common practice of suppressing the Conclusion and leaving it to be supplied by the hearer, who is of course less likely to perceive whether it be really that "which was to be proved," than if it were distinctly stated. The practice therefore is at best suspicious; and it is better

DISSERTATION

ON THE

PROVINCE OF REASONING.

LOGIC being concerned with the theory of Reasoning, it is evidently necessary, in order to take a correct view of this Science, that all misapprehensions should be removed relative to the occasions on which the Reasoning-process is employed,—the purposes it has in view,—and the limits within which it is confined.

Simple and obvious as such questions may appear to those who have not thought much on the subject, they will appear on further consideration to be involved in much perplexity and obscurity, from the vague and inaccurate language of many popular writers. To the confused and incorrect notions that prevail respecting the Reasoning-process may be traced most of the common mistakes respecting the Science of Logic, and much of the unsound and unphilosophical argumentation which is so often to be met with in the works of ingenious writers.

These errors have been incidentally adverte to in the foregoing part of this work; but i may be desirable, before we dismiss the subject to offer on these points some further remarks which could not have been there introduce without too great an interruption to the developement of the system. Little or nothin indeed remains to be said that is not *implied* i the principles which have been already lai down; but the results and applications of tho principles are liable in many instances to b overlooked, if not distinctly pointed out. The supplementary observations will neither requ nor admit of, so systematic an arrangement has hitherto been aimed at; since they will such as are suggested principally by the ob tions and mistakes of those who have misun stood, partially or entirely, the nature of Logical system.

the error in question, by their inaccurate expressions. This inaccuracy seems chiefly to have arisen from a vagueness in the use of the word Induction, which is sometimes employed to designate the process of *investigation* and of collecting facts; sometimes, the deducing of an inference *from* those facts. The former of these processes (*i. e.* that of observation and experiment) is undoubtedly *distinct* from that which takes place in the Syllogism; but then it is not a process of *argument;* the latter again *is* an argumentative process; but then it is, like all other arguments, capable of being Syllogistically expressed. And hence Induction has come to be regarded as a *distinct* kind of *argument* from the Syllogism. This Fallacy cannot be more concisely or clearly stated, than in the technical form with which we may now presume our readers to be familiar. .

> " Induction is distinct from Syllogism:
> Induction is a process of Reasoning;" therefore
> " There is a process of Reasoning distinct from Syllogism."

Here, " Induction," which is the middle Term, is used in different senses in the two Premises.

Analysis of Induction.

In the process of Reasoning by which we deduce, from our observation of certain known cases, an inference with respect to unknown ones, we are employing a Syllogism in *Barbara* with the major * Premiss suppressed; that being always substantially the same, as it asserts, that " what belongs to the individual or individuals we have examined, belongs to the whole class under which they come :" *e. g.* from an examination of the history of several tyrannies, and finding that each of them was of short duration, we conclude, that " the same is likely to be the case with all tyrannies ;" the suppressed major Premiss being easily supplied by the hearer; *viz.* " that what belongs to the tyrannies in question is likely to belong to all."

Two senses of the word Induction.

Induction, therefore, so far forth as it is an *argument*, may, of course, be stated Syllogistically: but so far forth as it is a *process of inquiry* with a view to obtain the Premises of that argument, it is, of course, out of the province of Logic. Whether the Induction (in this last sense) has been sufficiently ample, *i. e.* takes in a sufficient number of individual cases,—whether the character of those cases has been correctly ascertained—and how far the individuals we have examined are *likely to resemble*, in this or that circumstance, *the rest* of the class, *&c. &c.*, are points that require indeed great judgment and caution; but this judgment and caution are not to be aided by Logic, because they are, in reality, employed in deciding whether or not it is fair and allowable to *lay down your Premises; i. e.* whether you are authorized or not, to assert, that "what is true of the individuals you have examined, is true of the whole class:" and that this or that *is* true of those individuals. Now, the rules of Logic have nothing to do with the truth or falsity of the Premises, but merely teach us to decide (not whether the Premises are *fairly laid down*, but) whether the Conclusion *follows fairly from* the Premises or not.

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* Not the minor, as Aldrich represents it. The instance he gives will sufficiently prove this: " This and that, and the other magnet attract iron: therefore so do all." If this were, as he asserts, an Enthymeme whose *minor* is suppressed, the only Premiss which we could supply, to fill it up, would be, " All magnets are this, that, and the other;" which is manifestly [illegible]:

§ 2.

Assumption of Premises in Induction.

Whether the Premiss may fairly be assumed, or not, is a point which cannot be decided without a competent knowledge of the *nature of the subject: e. g.* in Natural Philosophy, in which the circumstances that in any case affect the result, are usually far more clearly ascertained, a *single instance* is often accounted a sufficient Induction; *e. g.* having once ascertained that an individual magnet will attract iron, we are authorized to conclude that this property is universal: in the affairs of human life, on the other hand, a much fuller Induction is required, as in the former example. In short, the *degree of evidence* for any proposition we originally assume as a Premiss (whether the expressed or the suppressed one) is not to be learned from Logic, nor indeed from *any one distinct* Science; but is the province of whatever Science furnishes the subject-matter of your argument. None but a Politician can judge rightly of the degree of evidence of a proposition in Politics; a Naturalist, in Natural History, *&c. &c.*: *E. G.* Investigation. from examination of many horned animals, as sheep, cows, *&c.* a Naturalist finds that they have cloven feet; now his *skill as a Naturalist* is to be shown in judging whether these animals are likely to resemble in the form of their feet all other horned animals; and it is the exercise of this judgment, together with the examination of individuals, that constitutes what is usually meant by the *Inductive process;* which is that by which we gain, properly, *new truths*, and which is not connected with Logic; being not what is strictly called *Reasoning*, but *Investigation.* But when this major Premiss is granted him, and is combined with the minor, *viz.* that the animals he has examined have cloven feet, then he *draws the Conclusion Logically*: *viz.* that "the feet of all horned animals are cloven*." Again, if from several times meeting with ill-luck on a Friday, any one concluded that Friday, universally, is an unlucky day, one would object to his *Induction;* and yet it would not be, as an *argument, illogical;* since the Conclusion *follows* fairly, *if* you *grant* his implied Premiss, that the events which happened on those particular Fridays are such as must happen on all Fridays; but we should object to his *laying down this* Premiss: and therefore should justly say that his *Induction* was faulty, though his *argument* were correct.

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* I have selected an instance in which Induction [illegible]

The more doubtful Premiss suppressed in Induction.

And here it may be remarked, that the ordinary rule for fair argument, *viz.* that in an Enthymeme the suppressed Premiss should be always the one of whose truth *least doubt* can exist, is not observed in Induction: for the Premiss which is usually the more doubtful of the two, is, in that, the *major;* it being in few cases quite certain that the individuals, respecting which some point has been ascertained, are to be fairly regarded as a sample of the whole class: the major Premiss, nevertheless, is seldom expressed, for the reason just given, that it is easily understood, as being, *mutatis mutandis,* the *same* in every Induction.

What has been said of Induction will equally apply to Example; which differs from it only

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only ground we have to rest on; no reason, that I know of, having ever been assigned that could have led us to conjecture this curious fact à priori.

in having a singular instead of a general Conclusion; *e. g.* in the instance above, if the Conclusion had been drawn, not respecting tyrannies in general, but respecting *this or that* tyranny, that it was not likely to be lasting, *each* of the cases adduced to prove this would have been called an Example.

Chapter II.

ON THE DISCOVERY OF TRUTH.

§ 1.

Whether it is by a process of Reasoning that New Truths are brought to light, is a question which seems to be decided in the negative by what has been already said; though many eminent writers seem to have taken for granted the affirmative. It is, perhaps, in a great measure, a dispute concerning the use of words; but it is not, for that reason, either uninteresting or unimportant, since an inaccurate use of language may often, in matters of Science, lead to confusion of thought, and to erroneous conclusions. And, in the present instance, much of the undeserved contempt which has been bestowed on the Logical system may be traced to this source; for when any one has laid down, that "Reasoning is important in the discovery of Truth," and that "Logic is of no service in the discovery of Truth," (each of which propositions is true in a certain sense of the terms employed, but not in the *same* sense) he is naturally led to conclude, that there are processes of Reasoning to which the Syllogistic theory does not apply, and, of course, to misconceive altogether the nature of the Science.

In maintaining the negative side of the above question, three things are to be premised: first, that it is not contended that discoveries of any kind of Truth can be made (or at least are usually made) *without* Reasoning; only, that Reasoning is not the *whole* of the process, nor the whole of that which is important therein: secondly, that Reasoning shall be taken in the sense, not of *every* exercise of the Reason, but of *Argumentation*, in which we have all along used it, and in which it has been defined by all the Logical writers, *viz.* "from certain granted propositions to infer another proposition as the consequence of them:" thirdly, that by a "New Truth," be understood something neither expressly nor virtually asserted before,—not implied and involved in anything already known.

To prove, then, this point demonstratively becomes in this manner perfectly easy; for since all Reasoning (in the sense above defined) may be resolved into Syllogisms; and since even the objectors to Logic make it a subject of complaint, that in a Syllogism the Premises do virtually assert the Conclusion, it follows at once that no New Truth (as above defined) can be elicited by any process of Reasoning.

It is on this ground, indeed, that the justly-celebrated author of the *Philosophy of Rhetoric* objects to the Syllogism altogether, as necessarily involving a *petitio principii;* an objection which, of course, he would not have been disposed to bring forward, had he perceived that, whether well or ill-founded, *it lies against all arguments whatever.* Had he been aware that a Syllogism is no distinct kind of argument otherwise than in form, but is, in fact, any argument whatever, stated regularly and at full length, he would have obtained a more correct view of the object of all Reasoning; which is, merely to expand and unfold the assertions wrapt up, as it were, and implied in those with which we set out, and to bring a person to perceive and acknowledge the full force of that which he has admitted; to contemplate it in various points of view; to admit in one shape what he has already admitted in another, and to give up and disallow whatever is inconsistent with it.

Nor is it always a very easy task even to bring before the mind the several bearings,—the various applications,—of any one proposition. A common Term comprehends several, often numberless individuals; and these often, in some respects, widely differing from each other; and no one can be, on each occasion of his employing such a Term, attending to and fixing his mind on each of the individuals, or even of the species so comprehended. It is to be remembered, too, that both Division and Generalization are in a great degree arbitrary; *i. e.* that we may both divide the same genus on several different principles, and may refer the same species to several different classes, according to the nature of the discourse and drift of the argument; each of which classes will furnish a distinct middle Term for an argument, according to the question. *e. g.* If we wished to prove that "a horse feels," (to adopt an ill-chosen example from the above writer,) we might refer it to the genus "animal;" to prove that "it has only a single stomach," to the genus of "non-ruminants;" to prove that it is "likely to degenerate in a very cold climate," we should class it with "original productions of a hot climate," *&c. &c.* Now each of these, and numberless others to which the same thing might be referred, are implied by the very term "horse;" yet it cannot be expected that they can all be at once present to the mind whenever that term is uttered. Much less, when, instead of such a Term as that, we are employing Terms of a very abstract and, perhaps, complex signification*, as "government, justice," *&c.*

Categories. The ten Categories† or Predicaments, which

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* On this point there are some valuable remarks in the *Philosophy of Rhetoric* itself, book iv. ch. vii.

† The Categories enumerated by Aristotle, are *οὐσία*, πόσον, ποῖον, πρὸστι, ποῦ, πότε, κεῖσθαι, ἔχειν, ποιεῖν,

Aristotle and other Logical writers have treated of, being certain general heads or *summa genera*, to one or more of which every Term may be referred, serve the purpose of marking out certain tracks, as it were, which are to be pursued in searching for middle Terms, in each argument respectively; it being essential that we should generalize on a right principle, with a view to the question before us; or, in other words, that we should abstract that portion of any object presented to the mind, which is important to the argument in hand. There are expressions in common use which have a reference to this caution; such as, "this is a question, not as to the nature of the object, but the *magnitude* of it:" "this is a question of *time*, or of *place*," *&c.* *i. e.* "the subject must be referred to this or to that Category."

With respect to the meaning of the Terms in question, "Discovery," and "New Truth;" it matters not whether we confine ourselves to the narrowest sense, or admit the widest, pro-

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πάσχειν; which are usually rendered, as adequately as, perhaps, they can be in our language, Substance, Quantity, Quality, Relation, Place, Time, Situation, Possession, Action, Suffering. The catalogue has been by some writers enlarged, as it is evident may easily be done by subdividing some of the heads; and by others curtailed, as it is no less evident that all may ultimately be referred to the two heads of *Substance* and *Attribute*, or (in the language of some Logicians) *Accident*.

Two kinds of Discovery.

Information.

vided we do but *distinguish:* there certainly *are* two kinds of "New Truth" and of "Discovery," if we take those words in the widest sense in which they are ever used. First, such Truths as were, before they were discovered, *absolutely* unknown, being not implied by anything we previously knew, though we might perhaps suspect them as probable; such are all *matters of fact* strictly so called, when first made known to one who had not any such previous knowledge, as would enable him to ascertain them *à priori; i. e.* by Reasoning; as, if we inform a man that we have a colony at Botany Bay; or that the earth is at such a distance from the sun; or that platina is heavier than gold. The communication of this kind of knowledge is most usually, and most strictly, called *information;* we gain it from *observation,* and from *testimony;* no *mere internal workings* of our own minds (except when the mind itself is the very object to be observed), or *mere* discussions in words, will make these known to us; though there is great room for sagacity *in judging what testimony to admit,* and forming *conjectures* that may *lead* to *profitable observation,* and to experiments with a view to it.

The other class of Discoveries is of a very different nature. That which may be elicited by Reasoning, and consequently is implied in that which we already know, we assent to that ground, and not from observation or testimony: to take a Geometrical truth upon *trust*, or to attempt to ascertain it by *observation*, would betray a total ignorance of the nature of the Science. In the longest demonstration, the Mathematical teacher seems only to lead us to make use of our own stores, and point out to us how much we had already admitted; and, in the case of many Ethical propositions, we assent at first hearing, though perhaps we had never heard or thought of the proposition before; so also do we readily *assent* to the *testimony* of a respectable man, who tells us that our troops have gained a victory; but how different is the nature of the assent in the two cases. In the latter we are ready to thank the man for his information, as being such as no wisdom or learning would have enabled us to ascertain; in the former, we usually exclaim "*very true!*" "that is a valuable and just remark; that never *struck* me before!" implying at once our practical ignorance of it, and also our consciousness that we possess, in what we already know, the means to ascertain the truth of it; that we have a right, in short, to bear *our testimony* to its truth.

Instruction.

To all practical purposes, indeed, a Truth of this description may be as completely unknown to a man as the other; but as soon as it is set before him, and the argument by which it is connected with his previous notions is made clear to him, he *recognises* it as something conformable to, and contained in, his former belief.

It is not improbable that Plato's doctrine of Reminiscence arose from a hasty extension of what he had observed in this class, to all acquisition of knowledge whatever. His Theory of ideas served to confound together *matters of fact* respecting the nature of things, (which may be perfectly new to us) with propositions *relating to our own notions,* and modes of thought; (or to speak, perhaps, more correctly, our own arbitrary signs) which propositions must be contained and implied in those very complex notions themselves; and whose truth is a conformity, not to the nature of things, but to our own hypothesis. Such are all propositions in pure Mathematics, and many in Ethics, *viz.* those which involve no assertion as to real matters of fact. It has been rightly remarked*, that Mathematical propositions are not properly true or false in the same sense as any proposition respecting real fact is so called; and hence the truth (such as it is) of such propositions is necessary and eternal; since it amounts only to this, that any complex notion which you have arbitrarily framed, must be exactly conformable to itself. The proposition, that "the belief in a future state, combined with a complete devotion to the present life, is not consistent with the character of prudence," would be not at all the less true if a future state were a chimera, and prudence a quality which was no-where met with; nor would the truth of the Mathematician's conclusion be shaken, that "circles are to each other as the squares of their diameters," should it be found that there never had been a circle, or a square, conformable to the definition in *rerum naturâ**.

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* Dugald Stewart's Philosophy, [illegible]

The Ethical proposition, just instanced, is one of those which Locke calls "trifling," because the Predicate is merely a part of the complex idea implied by the subject; and he is right, if by "trifling" he means that it gives not, strictly speaking, any *information:* but he should consider, that to *remind* a man of what he had not, and what he would not have thought of, may be, practically, as valuable as giving him information; and that most propositions in the best sermons, and all, in pure Mathematics, are of the description which he censures.

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* Hence the futility of the attempt of Clarke, and others, to *demonstrate* (in the mathematical sense) the existence of a Deity. This can only be done by covertly assuming in the Premises the very point to be proved. No *matter of fact* can be mathematically demonstrated; though it may be proved in such a manner as to leave no doubt on the mind. *e. g.* I have no more doubt that I met such and such a man, in this or that place, yesterday, than that the angles of a triangle are equal to two right angles: but the *kind* of certainty I have of these two truths is widely different; to say, that I did *not* meet the man, would be false indeed, but it would not be anything *inconceivable*, *self-contradictory*, and *absurd;* but it would be so, to deny the equality of the angles of a triangle to two right angles.

It is, indeed, rather remarkable that he should speak so often of building Morals into a demonstrative Science, and yet speak so slightingly of those very propositions to which we must absolutely *confine* ourselves, in order to give to Ethics even the appearance of such a Science; for the instant you come to an assertion respecting a *matter of fact*, as that "men (*i. e. actually* existing men) are bound to practise virtue," or "are liable to many temptations," you have stepped off the ground of strict demonstration, just as when you proceed to practical Geometry.

Information and Instruction.

But to return: it is of the utmost importance to distinguish these two kinds of Discovery of Truth. In relation to the former, as I have said, the word "*information*" is most strictly applied; the communication of the latter is more properly called "*instruction*." I speak of the *usual* practice; for it would be going too far to pretend that writers are uniform and consistent in the use of these, or of any other term. We say that the Historian gives us *information* respecting past times; the T[illegible] respecting foreign countries: on the other hand, the Mathematician gives *instruction* in the principles of his Science; the Moralist *instructs* us in our duties; and we generally use the expressions "a well-informed man," and "a well-instructed man," in a sense conformable to that which has been here laid down. However, let the words be used as they may, the things are evidently different, and ought to be distinguished. It is a question comparatively unimportant, whether the term "Discovery" shall or shall not be extended to the eliciting of those Truths, which, being implied in our previous knowledge, may be established by mere strict Reasoning. Similar verbal questions, indeed, might be raised respecting many other cases: *e. g.* one has forgotten (*i. e.* cannot *recollect*) the name of some person or place; perhaps we even try to think of it, but in vain; at last some one reminds us, and we instantly *recognise* it as the one we wanted to recollect; it may be asked, was this in our mind or not? The answer is, that in one sense it was, and in another sense, it was not. Or, again, suppose there is a vein of metal on a man's estate, which he does not know of; is it part of his possessions or not? and when he finds it out and works it, does he then *acquire* a *new* possession or not? Certainly not, in the same sense as if he has a fresh estate bequeathed to him, which he had formerly no *right* to; but to all practical purposes, it *is* a new possession. This case, indeed, may serve as an illustration of the one we have been considering; and in all these cases, if the real distinction be understood, the verbal question will not be of much consequence. To use one more illustration. Reasoning has been aptly compared to the piling together blocks of stone; on each of which, as on a pedestal, a man can raise himself a small, and but a small, height above the plain; but which, when skilfully built up, will form a flight of steps, which will raise him to a great elevation. Now (to pursue this analogy) when the materials are all ready to the builder's hand, the blocks ready dug and brought, his work resembles one of the two kinds of Discovery just mentioned, *viz.* that to which we have assigned the name of *instruction:* but if his materials are to be entirely, or in part, provided by himself,—if he himself is forced to dig fresh blocks from the quarry,—this corresponds to the other kind of Discovery.

§ 2.

Physical Discoveries.

I have hitherto spoken of the employment of argument in the establishment of those hypothetical Truths (as they may be called) which relate only to our own abstract notions; it is not, however, meant to be insinuated that there is no room for Reasoning in the establishment of a matter of fact; but the other class of Truths have first been treated of, because, in discussing subjects of that kind, the process of Reasoning is always the *principal,* and often the *only* thing to be attended to, if we are but certain and clear as to the meaning of the terms; whereas, when assertions respecting real existence are introduced, we have the additional and more important business of ascertaining and keeping in mind the *degree* of *evidence* for those facts; since, otherwise, our Conclusions could not be relied on, however accurate our Reasoning; but, undoubtedly, we may by Reasoning arrive at matters of fact, *if* we have *matters* of *fact to set out with as data;* only that it will very often happen that, "from certain facts," as Campbell remarks, "we draw only probable Conclusions;" because the other Premiss introduced (which he overlooked) is only probable. He observed that in such an instance, for example, as the one lately given, we infer from the *certainty* that such and such tyrannies have been short-lived, the *probability* that others will be so; and he did not consider that there is an understood Premiss which is essential to the argument; (*viz.* that all tyrannies will resemble those we have already observed) which being only of a probable character, must attach the same degree of uncertainty to the Conclusion*. An *individual* fact is not unfrequently elicited by skilfully combining, and Reasoning from, those already known; of which many curious cases occur in the detection of criminals by officers of justice, and Barristers, who acquire by practice such dexterity in that particular department, as to draw sometimes the right Conclusion from data, which might be in the possession of others, without being applied to the same use. In all cases of the establishment of a *general* fact from Induction, that *general* fact (as has been formerly remarked) is *ultimately* established by Reasoning; *e. g.* Bakewell, the celebrated cattle-breeder, observed, in a great number of individual beasts, a tendency to fatten readily, and in a great number of others the absence of this constitution: in every individual of the former description, he *observed* a certain peculiar *make*, though they differed widely in size, colour, *&c.* Those of the latter description differed no less in various points, but agreed in being of a different make from the others: these facts were his data; from which, combining them with the general principle, that Nature is steady and uniform in her proceedings, he *logically* drew the conclusion, that beasts of the specified make have universally a peculiar tendency to fattening: but then his principal merit consisted in *making* the observations, and in so *combining* them as to *abstract* from each of a multitude of cases, differing widely in many respects, the circumstances in which they all agreed; and also in conjecturing skilfully how far those circumstances were likely to be found in the whole class: the making of such observations, and still more the combination, abstraction, and judgment employed, are what men commonly mean (as was above observed) when they speak of *Induction;* and these operations are certainly distinct from Reasoning. The same observations will apply to numberless other cases; as, for instance, to the Discovery of the law of "*vis inertiæ*," and the other principles of Natural Philosophy.

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* And the doubtfulness is *multiplied*, if *both* Premises are uncertain. For since it is only on the supposition of *both* Premises being true, that we can calculate on the truth of the Conclusion, we must state in numbers the chances against each Premiss being true, and then multiply these together, to judge of the degree of evidence of the Conclusion.

But to what class, it may be asked, should be referred the Discoveries thus made? All would agree in calling them, when first ascertained, "New Truths," in the strictest sense of the word; which would seem to imply their belonging to the class which may be called, by way of distinction, "*Physical Discoveries:*" and yet their being ultimately established by Reasoning, would seem, according to the foregoing rule, to refer them to the other class, *viz.* what may be called "*Logical* Discoveries;" since whatever is established by Reasoning must have been contained and virtually asserted in the Premises. In answer to this, it is to be observed, that they certainly do belong to the latter class, *relatively* to a person who is *in possession of the data:* but to him who is *not,* they are New Truths of the other class; for it is to be remembered, that the words "Discovery" and "New Truths" are necessarily *relative:* there may be a proposition which is to one person absolutely *known;* to another (*viz.* one to whom it has never *occurred,* though he is in possession of all the data from which it may be *proved*) it will be (when he comes to perceive it, by a process of *instruction*) what we have called a *Logical Discovery:* to a third (*viz.* one who is ignorant of these data) it will be absolutely *unknown,* and will have been, when made known to him, a perfectly and properly New Truth,—a piece of information,—a *Physical Discovery,* as we have called it.* To the Philosopher, therefore, who

Logical Discoveries.

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* It may be worth while in this place to define what is properly to be called *Knowledge:* it implies three things;

arrives at the Discovery by Reasoning from his observations, and from established principles combined with them, the Discovery is of the former class; to the multitude, probably, of the latter, as *they* will have been most likely not possessed of all his data.

It follows from what has been said, that in Mathematics, and in such Ethical propositions as we were lately speaking of, we do not allow the possibility of *any* but a Logical Discovery; *i. e.* no proposition, of that class, can be true, which was not implied in the definitions and axioms we set out with, which are the first principles: for since these propositions do not profess to state any matter of fact, the only Truth they *can* possess, *consists* in conformity to the original principles: to one, therefore, who *knows* these principles, such propositions are Truths already implied, since they may be developed to him by Reasoning, if he is not

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1st, firm *belief*, 2dly, of what is *true*, 3dly, on *sufficient grounds*. If any one *e. g.* is in *doubt* respecting one of Euclid's demonstrations, he cannot be said to *know* the proposition proved by it; if, again, he is fully *convinced* of anything that is not *true*, he is mistaken in supposing himself to know it; lastly, if two persons are each *fully confident*, one that the moon is inhabited, and the other that it is not, (though one of these opinions must be *true*) neither of them could properly be said to *know* the truth, since he cannot have sufficient *proof* of it.

defective in the discursive faculty; and again, to one who does *not* understand those principles (*i. e.* is not master of the definitions) such propositions are in great measure, if not wholly, unmeaning. On the other hand, propositions relating to matters of fact, *may be*, indeed, implied in what he already knew; (as he who knows the climate of the Alps, the Andes, *&c.* *&c.* has virtually admitted the general fact, that "the tops of mountains are comparatively cold") but as these possess an absolute and physical Truth, they *may* also be absolutely "new," their Truth not being *implied by the mere terms of the propositions.* The truth or falsity of any proposition concerning a triangle, is implied by the meaning of that and of the other Geometrical terms; whereas, though one may *understand* (in the ordinary sense of that word) the full meaning of the terms "planet," and "inhabited," and of all the other terms in the language, he cannot thence be certain that the planets are, or are not, inhabited.

§ 3.

It has probably been the source of much perplexity, that the term "*true*" has been applied *indiscriminately* to two such different classes of propositions. The term *definition* is used with the same laxity; and much confusion has thence resulted. Such Definitions as the Mathematical, must imply every attribute that belongs to the thing defined; because that *thing* is merely *our meaning;* which meaning the Definition lays down: whereas, real substances, having an independent existence, may possess innumerable qualities (as Locke observes) not implied in the meaning we attach to their names, or, as Locke expresses it, in our ideas of them.

Real and Nominal definitions.

"Their *nominal essence* (to use his language) is not the same as their *real essence;*" whereas the nominal essence, and the real essence, of a Circle, *&c.* are the same. A Mathematical Definition, therefore, cannot properly be called *true*, since it is not properly a *proposition**, (any more than an article in a Dictionary,) but merely an explanation of the meaning of a Term. Perhaps in Definitions of this class, it might be better to substitute (as Aristotle usually does) the *imperative* mood for the indicative: thus bringing them into the form of *postulates;* for the Definitions and the Postulates in Mathematics differ in little or nothing but the form of expression: *e. g.* "let a four-sided figure, of equal sides and right angles, be called a square," would clearly imply that such a figure is *conceivable*, and that the writer *intended to employ* that term to signify such a figure; which is precisely all that is meant to be asserted. If, indeed, a Mathematical writer mean to assert that the *ordinary* sense of the term is that which he has given, *that*, certainly, *is* a proposition, which must be either true or false; but in defining a *new* term, though the term indeed may be ill chosen and improper, or the Definition may be self-contradictory, and consequently unintelligible, the words "true," and "false," do not apply. The same may be said of what are called *nominal* Definitions of other things, *i. e.* those which merely explain the meaning of the word; *viz.* they can be true or false only when they profess (and so far as they profess) to give the *ordinary and established* meaning of the Term. But those which are called *real* Definitions, *viz.* which unfold the nature of the thing, (which they may do in *various degrees*,) to these the epithet "true" may be applied; and to make out such a Definition will often be the very *end* (not as in Mathematics the *beginning*) of our study*.

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* I mean, in this place, that expression of a Definition in which the *name* is conjoined with that which is, properly speaking, the definition of it, in the form of a proposition: as *e.g.* "a Triangle is *a plane superficial figure bounded by three sides:*" the words in italics are what, strictly speaking, constitute the Definition; but what I am here speaking of is the whole sentence.

In Mathematics there is no such distinction between nominal and real Definition; *the meaning of the term*, and the *nature of the thing*, being one and the same; so that *no correct Definition whatever* of any Mathematical term can be devised, which shall not imply every thing which belongs to the term.

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* Burke on Taste, in the Introduction to his "Essay on the Sublime and Beautiful."

§ 4.

Ambiguity of the word Reasoning.

When it is asked, then, whether such great Discoveries, as have been made in Natural Philosophy, were accomplished, or can be accomplished, by *Reasoning?* the inquirer should be reminded, that the question is ambiguous; it may be answered in the affirmative, if by "Reasoning" is meant to be included the *assumption of Premises*. To the right performance of *that* work, is requisite, not only, in many cases, the ascertainment of facts, and of the degree of evidence for doubtful propositions, (in which observation and experiment will often be indispensable,) but also a skilful *selection* and *combination* of known facts and principles; such as implies, amongst other things, the exercise of that powerful *abstraction* which seizes the common circumstances—the point of agreement—in a number of, otherwise, dissimilar individuals; and it is in this that the greatest genius is shown. But if "Reasoning" be understood in the limited sense in which it is usually defined, then we must answer in the negative; and reply that such Discoveries are made by means of Reasoning *combined* with other operations.

In the process we have been speaking of, there *is* much Reasoning throughout; and thence the whole has been carelessly called a "process of Reasoning."

It is not, indeed, any just ground of complaint that the word Reasoning is *used in two senses;* but that the two senses are perpetually *confounded together:* and hence it is that some Logical writers fancied that Reasoning (*viz.* that which Logic treats of) was the method of discovering Truth; and that so many other writers have accordingly complained of Logic for not accomplishing that end; urging that "Syllogism" (*i. e.* Reasoning; though they overlooked the coincidence) never established any thing that is, strictly speaking, unknown to him who has granted the Premises: and proposing the introduction of a certain "rational Logic" to accomplish this purpose; *i. e.* to direct the mind in the progress of investigation. Supposing that some such system could be devised—that it could even be brought into a scientific form, (which he must be more sanguine than scientific who expects,)—that it were of the greatest conceivable utility,—and that it should be allowed to bear the name of "Logic," (since it would not be worth while to contend about a name,) still it would not, as these writers seem to suppose, have the same object proposed with the Aristotelian Logic; or be in any respect a rival to that system. A plough may be a much more ingenious and valuable instrument than a *flail*; but it never can be substituted for it.

Those Discoveries of general laws of Nature, *&c.* of which we have been speaking, being of that character which we have described by the name of "Logical Discoveries," *to him who is in possession of all the Premises from which they are deduced*; but being, *to the multitude* (who are unacquainted with many of those Premises) strictly "New Truths," hence it is, that men in general give to the *general* facts, and to them, most peculiarly, the name of *Discoveries*; for to *themselves* they *are* such, in the strictest sense; the Premises from which they were inferred being not only originally unknown to them, but frequently *remaining unknown to the very last*; *e. g.* the general conclusion concerning cattle, which Bakewell made known, is what most Agriculturists (and many others also) are acquainted with; but the Premises he set out with, *viz.* the facts respecting this, that, and the other, individual ox, (the ascertainment of which facts was his first *Discovery,*) these are what few know, or care to know, with any exact particularity.

Observation and experiment.

And it may be added, that these discoveries of particular facts, which are the *immediate* result of *observation,* are, in themselves, uninteresting and insignificant, *till* they are combined so as to lead to a grand general result; those who on each occasion watched the motions, and registered the times of occultation of Jupiter's satellites, little thought, perhaps, themselves, what magnificent results they were preparing the way for*. So that there is an additional cause which has confined the term Discovery to these grand general conclusions; and, as was just observed, they are, to the generality of men, perfectly New Truths in the strictest sense of the word, not being implied in any previous knowledge they possessed. Very often it will happen, indeed, that the conclusion thus drawn will amount only to a *probable conjecture;* which conjecture will dictate to the inquirer such an *experiment,* or course of experiments, as will fully establish the fact: thus Sir H. Davy, from finding that the flame of hydrogen gas was not communicated through a long slender tube, conjectured that a shorter but still slenderer tube would answer the same purpose; this led him to try the experiments, in which, by continually shortening the tube, and at the same time lessening its bore, he arrived at last at the wire-gauze of his safety-lamp.

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* Hence, Bacon urges us to pursue *Truth,* without always requiring to perceive its practical application.

It is to be observed also, that whatever *credit* is conveyed by the word "Discovery," to him who is regarded as the author of it, is well deserved by those who skilfully select and combine known Truths (*especially* such as have been *long* and *generally known*) so as to elicit important, and hitherto unthought-of, conclusions; their's is the master mind:—ἀρχιτεκτονικὴ φρόνησις. Whereas men of very inferior powers may sometimes, by immediate observation, discover perfectly new facts, empirically; and thus be of service in furnishing materials to the others; to whom they stand in the same relation (to recur to a former illustration) as the brickmaker or stone-quarrier to the architect. It is peculiarly creditable to Adam Smith, and to Mr. Malthus, that the data from which they drew such important Conclusions had been in every one's hands for centuries.

As for Mathematical Discoveries, they (as we have before said) must *always* be of the description to which we have given the name of "Logical Discoveries;" since to him who properly comprehends the meaning of the Mathematical terms, (and to no other are the Truths themselves, properly speaking, intelligible) those results are implied in his previous knowledge, since they are Logically deducible therefrom. It is not, however, meant to be implied, that *Mathematical* Discoveries are effected by pure Reasoning, and by that *singly*. For though there is not here, as in Physics, any exercise of judgment as to the degree of evidence of the Premises, nor any experiments and observations, yet there is the same call for skill in the *selection* and *combination* of the Premises in such a manner as shall be best calculated to lead to a new, that is, *unperceived* and *unthought-of* Conclusion.

In *following*, indeed, and *taking in* a demonstration, nothing is called for but pure Reasoning; but *the assumption of Premises is not a part* of Reasoning, in the strict and technical sense of that term. Accordingly, there are many who can *follow* a Mathematical demonstration, or any other train of argument, who would not succeed well in *framing* one of their own*.

§ 5.

Operations connected with Reasoning.

For both kinds of Discovery then, the Logical, as well as the Physical, certain operations are requisite, beyond those which can fairly be comprehended under the strict sense of the word "Reasoning:" in the Logical, is required a *skilful selection* and *combination of known Truths*: in the Physical, we must employ, in addition (generally speaking) to that process, *observation* and *experiment*. It will generally happen, that in the study of nature, and, universally, in all that relates to matters of fact, *both* kinds of investigation will be united; *i. e.* some of the facts or principles you *reason from* as Premises, must be ascertained by *observation*; or, as in the case of the safety-lamp, the ultimate *Conclusion* will need *confirmation* from experience; so that both Physical and Logical Discovery will take place in the course of the same process: we need not, therefore, wonder, that the two are so perpetually confounded. In Mathematics, on the other hand, and in great part of the discussions relating to Ethics and Jurisprudence, there being no room for any Physical Discovery whatever, we have only to make *a skilful* use of the propositions in our possession, to arrive at every attainable result.

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* Hence the Student must not confine himself to this passive kind of employment, if he would truly become a Mathematician.

The investigation, however, of the latter class of subjects differs in *other* points also from that of the former; for, setting aside the circumstance of our having, in these, no question as to facts,—no room for observation,—there is also a considerable difference in what may be called, in both instances, the process of *Logical* *investigation;* the *Premises* on which we proceed being of so different a nature in the two cases.

Mathematical and other Reasoning.

To take the example of Mathematics, the Definitions, which are the principles of our Reasoning, are very *few*, and the Axioms still fewer; and both are, for the most part, *laid down* and *placed before the student in the outset;* the introduction of a new Definition or Axiom, being of comparatively rare occurrence, at wide intervals, and with a *formal* statement; besides which, there is no room for *doubt* concerning either. On the other hand, in all Reasonings which regard matters of fact, we introduce, almost at *every step*, fresh and fresh propositions (to a very great number) which had not been elicited in the course of our Reasoning, but are taken for granted; *viz.* facts and laws of Nature, which are here the principles of our Reasoning, and *maxims*, or "elements of belief," which answer to the axioms in Mathematics. If, at the opening of a Treatise, for example, on Chemistry, on Agriculture, on Political Economy, *&c.* the author should make, as in Mathematics, a formal statement of all the propositions he intended to assume as granted throughout the whole work, both he and his readers would be astonished at the number; and, of these, many would be only probable, and there would be much room for doubt as to the *degree* of probability, and for judgment, in ascertaining that degree.

Moreover, Mathematical axioms are always employed precisely *in the same simple form;* *e. g.* the axiom that "things equal to the same are equal to one another," is cited, whenever there is need, in those very words; whereas the maxims employed in the other class of subjects, admit of, and require, continual modifications in the application of them: *e. g.* "the stability of the laws of Nature," which is our constant assumption in inquiries relating to Natural Philosophy, assumes many different shapes, and in some of them does not possess the same absolute certainty as in others: *e. g.* when, from having always observed a certain sheep ruminating, we infer, that this individual sheep will continue to ruminate, we assume that "the property which has hitherto belonged to this sheep will remain unchanged;" when we infer the same property of all sheep, we assume that "the property which belongs to this individual belongs to the whole species:" if, on comparing sheep with some other kinds of horned animals, and finding that all agree in ruminating, we infer that "all horned animals ruminate," we assume that "the whole of a genus or class are likely to agree in any point wherein many species of that genus agree;" or in other words,

" that if one of two properties, *&c.* has *often* been found accompanied by another, and never without it, the former will be *universally* accompanied by the latter:" now all these are merely different forms of the maxim, that " nature is uniform in her operations," which, it is evident, varies in expression in almost every different case where it is applied, and admits of every degree of evidence, from absolute moral certainty, to mere conjecture.

The same may be said of an infinite number of principles and maxims appropriated to, and employed in, each particular branch of study. Hence, all such Reasonings are, in comparison of Mathematics, very complex; requiring so much *more* than that does, beyond the process of merely deducing the conclusion, Logically from the Premises: so that it is no wonder that the longest Mathematical demonstration should be so much more easily constructed and understood, than a much shorter train of just Reasoning concerning real facts. The former has been aptly compared to a long and steep, but even and regular flight of steps, which tries the breath, and the strength, and the perseverance only; while the latter resembles a short, but rugged and uneven, ascent up a precipice, which requires a quick eye, agile limbs, and a firm step; and in which we have to tread now on this side, now on that—ever considering, as we proceed, whether this or that projection will afford room for our foot, or whether some loose stone may not slide from under us. There are probably as many steps of pure Reasoning in one of the longer of Euclid's demonstrations, as in the whole of an argumentative treatise on some other subject, occupying perhaps a considerable volume.

As for those Ethical and Legal Reasonings which were lately mentioned, as in some respects resembling those of Mathematics, (*viz.* such as keep clear of all assertions respecting facts) they have this difference; that not only men are not so completely *agreed* respecting the maxims and principles of Ethics and Law, but the meaning also of each term cannot be absolutely, and for ever, fixed by an arbitrary definition; on the contrary, a great part of our labour consists in distinguishing accurately the various senses in which men employ each term, —ascertaining which is the most proper,—and taking care to avoid confounding them together.

CHAPTER III.

OF INFERENCE AND PROOF.

§ 1.

SINCE it appears, from what has been said, that universally a man must possess something else besides the Reasoning-faculty, in order *to apply* that faculty properly to his own purpose, whatever that purpose may be; it may be inquired whether some theory could not be made out, respecting those "*other operations*" and "intellectual processes, distinct from Reasoning, which it is necessary for us sometimes to employ in the investigation of truth[*];" and whether rules could not be laid down for conducting them.

Different Applications of Reasoning.

Something has, indeed, been done in this way by more than one writer; and more might probably be accomplished by one who should fully comprehend and carefully bear in mind the principles of Logic, properly so called; but it would hardly be possible to build up anything like a regular *Science* respecting these matters, such as Logic is, with respect to the theory of Reasoning. It may be useful, however, to observe, that these "*other operations*" of which we have been speaking, and which are preparatory to the exercise of Reasoning, are of *two kinds*, according to the nature of the end proposed; for Reasoning comprehends *Inferring* and *Proving;* which are not two different things, but the same thing regarded in *two different points of view:* (like the road from London to York, and the road from York to London) he who infers,* proves; and he who proves, infers; but the word "infer" fixes the mind *first* on the Premiss, and then on the *Conclusion;* the word "prove," on the contrary, leads the mind *from* the conclusion *to* the Premiss. Hence, the substantives derived from these words respectively, are often used to express that which, on each occasion, is *last* in the mind; *Inference* being often used to signify the *Conclusion* (*i. e. Proposition inferred*) and *Proof*, the *Premiss*. We say, also, "How do you *prove* that?" and "What do you *infer from* that?" which sentences would not be so properly expressed if we were to transpose those verbs. One might, therefore, define *Proving*, "the assigning of a reason or argument for the support of a *given* proposition;" and "*Inferring*," the deduction of a Conclusion from *given* Premises."

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[*] D. Stewart.

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* I mean, of course, when the word is understood to imply *correct* Inference.

In the one case our *Conclusion* is *given*, (*i. e.* set before us) and we have to *seek* for *arguments;* in the other, our Premises are *given*, and we have to *seek* for a Conclusion: *i. e.* to put together our own propositions, and try *what* will follow from them; or, to speak more Logically, in the one case, we seek to refer the Subject of which we would predicate something, to a class to which that Predicate will (affirmatively or negatively) apply; in the other, we seek to find comprehended, in the Subject of which we have predicated something, some other term to which that Predicate had not been before applied*. *Each of these is a definition of Reasoning.*

§ 2.

Investigator and Advocate.

To *infer*, then, is the business of the *Philosopher;* to *prove*, of the *Advocate;* the former, from the great mass of known and admitted truths, wishes to elicit *any* valuable additional truth whatever, that has been hitherto unperceived; and, perhaps, without knowing, with certainty, what will be the terms of his Conclusion. Thus the Mathematician, *e. g.* seeks to ascertain *what* is the ratio of circles to each other, or *what* is the line whose square will be equal to a given circle: the Advocate, on the other hand, has a Proposition put before him, which he is to maintain as well as he can: his business, therefore, is to *find middle terms* (which is the *inventio* of Cicero); the Philosopher's, to combine and select known facts, or principles, suitably, for gaining from them Conclusions which, though implied in the Premises, were before unperceived: in other words, for making "Logical Discoveries."

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* "Proving" may be compared to the act of *putting away* any article into the proper receptacle of goods of that description; "inferring," to that of *bringing out* the article when needed.

Such are the respective preparatory processes in these two branches of study. They are widely different; they arise from, and generate, very different habits of mind; and require a very different kind of training and precept*. The Pleader, or Controversialist, or, in short, the Rhetorician in general, who is, in his own province, the most skilful, may be but ill-fitted for Philosophical investigation, even where there is no *observation* wanted;—when the facts are all *ready ascertained* for him. And again, the ablest Philosopher may make an indifferent disputant; especially, since the arguments which have led *him* to the conclusion, and have, with him, the most weight, may not, perhaps, be the most powerful in controversy. The commonest fault, however, by far, is to forget the Philosopher or Theologian, and to assume the Advocate, improperly. It is therefore of great use to dwell on the distinction between these two branches. As for the bare process of Reasoning, *that* is the same in both cases; but the preparatory processes which are requisite, *in order to employ* Reasoning profitably, these, we see, branch off into two distinct channels. In each of these, undoubtedly, useful rules may be laid down; but they should not be confounded together. Bacon has chosen the department of Philosophy, giving rules in his *Organon*, not only for the conduct of experiments to ascertain new facts, but also for the selection and combination of known facts and principles, with a view of obtaining valuable *Inferences;* and it is probable that a system of such rules is what some writers mean (if they have any distinct meaning) by their proposed "Logic."

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* It is evident that the business of the Advocate and that of the Judge are in this manner opposed; the one being to find arguments for the support of his client's cause; the other, to ascertain the truth. And hence it is, that those who have excelled the most in the former department, sometimes manifest a deficiency in the latter, though the *subject-matter*, in which they are conversant, remains the same.

Philosophical inquiry.

Rhetorical inquiry.

In the other department, precepts have been given by Aristotle and other Rhetorical writers, as a part of their plan. How far these precepts are to be considered as belonging to the present system,—whether "method" is to be regarded as a *part* of *Logic*,—whether the *matter* of Logic is to be included in the system,—whether Bacon's is properly to be reckoned a kind of Logic; all these are merely verbal questions, relating to the extension, not of the *Science*, but of the *name*. The bare process of Reasoning, *i. e.* deducing a Conclusion from Premises, must ever remain a distinct operation from the *assumption* of Premises, however useful the rules may be that have been given, or may be given, for conducting this latter process, and others connected with it; and however properly such rules may be subjoined to the precepts of that system to which the name of Logic is applied in the narrowest sense. Such rules as I now allude to may be of eminent service; but they must always be, as I have before observed, comparatively vague and general, and incapable of being built up into a regular demonstrative theory like that of the Syllogism; to which theory they bear much the same relation as the principles and rules of Poetical and Rhetorical criticism to those of Grammar; or those of practical Mechanics, to strict Geometry. I find no fault with the extension of a term; but I would suggest a caution against confounding together, by means of a common name, things essentially different; and above all I would deprecate the sophistry of striving to depreciate what is called "the school-Logic," by perpetually *contrasting* it with systems with which it has nothing in common but the *name*, and whose object is essentially different.

§ 3.

Aristotle's Organon and Bacon's.

It is not a little remarkable that writers, whose expressions tend to confound together, by means of a common name, two branches of study which have nothing else in common (as if they were two different plans for attaining *one and the same* object), have themselves complained of one of the effects of this confusion, *viz.* the introduction, early in the career of Academical Education, of a course of *Logic;* under which name, they observe, "men now* universally comprehend the works of Locke, Bacon, *&c.*" which, as is justly remarked, are unfit for beginners. Now this would not have happened, if men had always kept in mind the meaning or meanings of each name they used. And it may be added, that, however justly the word Logic may be thus extended, we have no ground for applying to the Aristotelian Logic the remarks above quoted respecting the Baconian; which the ambiguity of the word, if not carefully kept in view, might lead us to do. Grant that Bacon's work is a part of Logic; it no more follows, from the unfitness of *that* for *learners*, that the Elements of the Theory of Reasoning should be withheld from them, than it follows that the elements of Euclid, and common Arithmetic, are unfit for boys, because *Newton's Principia,* which also bears the title of *Mathematical,* is above their grasp. Of two branches of study which bear the same name, or even of two parts of the same branch, the one may be suitable to the commencement, the other to the close of the Academical career.

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* *i. e.* in the Scotch universities.

At whatever period of that career it may be proper to introduce the study of such as are usually called Metaphysical writers, it may be safely asserted, that those who have had the most experience in the business of giving instruction in Logic, properly so called, as well as in other branches of knowledge, prefer and generally pursue the plan of letting their pupils *enter* on that study, next in order after the elements of Mathematics.

CHAPTER IV.

OF VERBAL AND REAL QUESTIONS.

§ 1.

THE ingenious author of the *Philosophy of Rhetoric* having maintained, or rather assumed, that Logic is applicable to Verbal controversy alone, there may be an advantage (though it has been my aim throughout to show the application of it to all Reasoning) in pointing out the difference between Verbal and Real Questions, and the probable origin of Campbell's mistake; for to trace any error to its source, will often throw more light on the subject in hand than can be obtained if we rest satisfied with merely detecting and refuting it.

Every Question that can arise, is in fact a Question whether a certain Predicate is or is not applicable to a certain subject, or *what* Predicate is applicable; and whatever other account may be given by any writer of the nature of any matter of doubt or debate, will be found ultimately to resolve itself into this. But sometimes the Question turns on the meaning and extent of the *terms* employed; sometimes on the *things* signified by them. If it be made to appear, therefore, that the opposite sides of a certain Question may be held by persons not differing in their *opinion of the matter* in hand, then that Question may be pronounced Verbal; as depending on the different senses in which they respectively employ the *terms*. If, on the contrary, it appears that they employ the terms in the same sense, but still differ as to the application of one of them to the other, then it may be pronounced that the Question is Real,—that they differ as to the opinions they hold of the *things* in Question.

If, for instance, two persons contend whether Augustus deserved to be called a "great man," then, if it appeared that the one included, under the term "great," disinterested *patriotism*, and *on that ground* excluded Augustus from the class, as wanting in that quality; and that the other also gave him no credit for that quality, but understood no more by the term "great," than high intellectual qualities, energy of character, and brilliant actions, it would follow that the parties did not differ in opinion except as to the use of a term, and that the Question was Verbal. If, again, it appeared that the one *did* give Augustus credit for such patriotism, as the other denied him, both of them including that idea in the term great, then the Question would be Real. Either kind of Question, it is plain, is to be argued according to Logical principles; but the *middle terms employed would* *be different;* and for this reason, among others, it is important to distinguish Verbal from Real controversy. In the former case, *e. g.* it might be urged with truth, that the common use of the expression "great and good" proves that the idea of good is not implied in the ordinary sense of the word great; an argument which could have, of course, no place in deciding the other Question.

§ 2.

Verbal Questions mistaken for Real.

It is by no means to be supposed that all Verbal Questions are trifling and frivolous; it is often of the highest importance to settle correctly the meaning of a word, either according to ordinary use, or according to the meaning of any particular writer or class of men; but when Verbal Questions are *mistaken* for Real, much confusion of thought and unprofitable wrangling will be generally the result. Nor is it always so easy and simple a task, as might at first sight appear, to distinguish them from each other: for several objects to which one common name is applied will often have many points of difference, and yet that name may perhaps be applied to them all in the same sense, and may be fairly regarded as the genus they come under, if it appear that they all agree in what is designated by that name, and that the differences between them are in po not essential to the character of the genus. A cow and a horse differ in many respects, but agree in all that is implied by the term "quadruped," which is therefore applicable to both in the same sense. So also the houses of the ancients differed in many respects from ours, and their ships still more; yet no one would contend that the terms "house" and "ship," as applied to both, were ambiguous, or that οἶκος might not fairly be rendered *house*, and ναῦς *ship;* because the essential characteristic of a house is, not its being of this or that form or materials, but its being a dwelling for men; these therefore would be called *two different kinds* of houses; and consequently the term "house" would be applied to each, without any equivocation, in the same sense: and so in the other instances. On the other hand, two or more things may bear the same name, and may also have a resemblance in many points, and may from that resemblance have come to bear the same name, and yet if the circumstance which is essential to each be wanting in the other, the term may be pronounced ambiguous: *e. g.* The word "Priest" is applied to the ministers of the Jewish and of the Pagan religions, and also to those of the Christian; and doubtless the term is so used in consequence of their being both *ministers* (in some sort) of religion. Nor would every difference that might be found between the Priests of different religions constitute the term ambiguous, provided such differences were non-essential to the idea suggested by the word Priest; as *e. g.* the Jewish Priest served the true God, and the Pagan, false Gods: this is a most important difference, but does not constitute the term ambiguous, because neither of these circumstances is implied and suggested by the term Ἱερεὺς; which accordingly was applied both to Jewish and Pagan Priests. But the term Ἱερεὺς does seem to have implied the office of offering *sacrifice*, atoning for the sins of the people, and acting as mediator between man and the object of his worship; and accordingly that term is never applied to any one under the Christian system, except to the ONE great Mediator. The Christian ministers not having that office which was implied as essential in the term Ἱερεὺς, were never called by that name, but by that of πρεσβύτερος*. It may be concluded, therefore, that the term Priest is ambiguous, as corresponding to the terms Ἱερεὺς and πρεσβύτερος respectively, notwithstanding that there are points in which these two agree. These therefore should be reckoned, not *two different kinds* of Priests, but Priests in two different senses; since (to adopt the phraseology of Aristotle) the definition of them, so far forth as they are Priests, would be different.

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* From which our word Priest is derived, but which (it is remarkable) is never translated "Priest" in our version of the Scriptures, but "Elder."

It is evidently of much importance to keep in mind the above distinctions, in order to avoid, on the one hand, stigmatizing as Verbal controversies, what in reality are not such, merely because the Question turns on the applicability of a certain Predicate to a certain subject; or, on the other hand, falling into the opposite error of mistaking words for things, and judging of men's agreement or disagreement in opinion in every case, merely from their agreement or disagreement in the terms employed.

CHAPTER V.

OF REALISM.

§ 1.

NOTHING has a greater tendency to lead to the mistake just noticed, and thus to produce *undetected* Verbal Questions and fruitless Logomachy, than the prevalence of the notion of the Realists*, that genus and species are some real THINGS, existing independently of our conceptions and expressions; and that, as in the case of singular terms there is some real individual corresponding to each, so in common terms, also, there is something corresponding to each, which is the object of our thoughts when we employ any such term†.

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* It is well known what a long and furious controversy long existed in all the universities of Europe between the sects of the Realists and the Nominalists; the heat of which was allayed by the Reformation, which withdrew men's attention to a more important question.

† A doctrine commonly, but falsely, attributed to Aristotle, who expressly contradicts it. He calls individuals "primary Substances" (*πρῶται ȣ̓σιαι*), Genus and Species "secondary," as not denoting (*τοδε τι*) a "really-existing thing," *Πᾶσα δὲ ȣ̓σία δοκεῖ τόδε τι σημαίνειν. Ἐπὶ μὲν ȣ̓ν τῶν πρώτων ȣ̓σιῶν ἀναμφισβήτητον καὶ ἀληθές ἐστιν, ὅτι τόδε τι σημαίνει· ἄτομον γὰρ καὶ ἓν ἀριθμω τὸ δηλȣ́μενον ἐστιν. Ἐπὶ δὲ τῶν δευ*

There is one circumstance which ought to be noticed, as having probably contributed not a little to foster this error: I mean the peculiar technical sense of the word "Species" when applied to *organized Beings*. It has been laid down in the course of this work, that when several individuals are observed to resemble each other in some point, a common name may be assigned to them denoting that point,—applying to all or any of them so far forth as respects that common attribute,—and distinguishing them from all others; as, *e. g.*, the several individual buildings, which, however different in other respects, agree in being constructed for men's dwelling, are called by the common name of "House:" and it was added, that as we select at pleasure the circumstance that we choose to abstract, we may thus refer the same individual to several different species, according as it suits our purpose; and the same in respect of the reference of Species to Genus: whence it seems plainly to follow that Genus and Species are no *real things* existing independent of our thoughts, but are creatures of our own minds. Yet in the case of Species of *organized* Beings, it seems at first sight as if

Technical sense of Species when applied to organized Beings.

οὐσιῶν, ΦΑΙΝΕΤΑΙ *μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ, ἄνθρωπος, ἢ ζῶον·* ΟΥ ΜΗΝ ΓΕ ΑΛΗΘΕΣ· *ἀλλὰ μᾶλλον ποῖον τι σημαίνει· κ. τ. λ.* Aristotle, *Categ.* § 3.

this rule did not hold good; but that the Species to which each individual belongs, could not be in any degree arbitrarily fixed by us, but must be something real, unalterable, and independent of our thoughts. Cæsar or Socrates for instance, it may be said, must belong to the Species, Man, and can belong to no other; and the like, with any individual Brute, or Plant. On the other hand, if any one utters such a proposition as "Argus was a mastiff," to what head of Predicables would this Predicate be referred? Surely our logical principles would lead us to answer, that it is the *Species;* since it could hardly be called an Accident, and is manifestly no other Predicable. But every Naturalist would at once pronounce that Mastiff is no distinct Species, but only a *variety* of the Species Dog. This however does not satisfy our inquiry as to the head of Predicables to which it is to be referred. The solution of the difficulty is to be found in the consideration of the peculiar technical sense of the word "Species" when applied to *organized Beings:* in which case it is always applied (when we are speaking strictly, as naturalists) to such individuals as are supposed to be *descended from a common stock*, or which *might* have so descended; *viz.* which resemble one another (to use M. Cuvier's expression) as much as those of the same stock do. Now this being a point on

Species distinguished by Naturalists from variety.

Questions of fact and questions of arrangement.

which all (not merely Naturalists) are agreed, and since it is a matter of *fact*, that such and such individuals are, or are not, thus connected, it follows, that every question whether a certain individual Animal or Plant belongs to a certain Species or not, is a question not of mere *arrangement*, but of *fact*. But in the case of questions respecting *Genus* it is otherwise. If, *e. g.*, two Naturalists differed, in the one placing (as Linnæus) all the Species of Bee under one *Genus*, which the other subdivided (as later writers have done) into several genera, it would be evident that there was no question of *fact* debated between them, and that it was only to be considered which was the more *convenient arrangement;* if, on the other hand, it were disputed whether the African and the Asiatic Elephant are distinct *Species*, or merely Varieties, it would be equally manifest that the question is one of fact; since both would allow that if they were descended (or might have descended) from the same stock, they were of the same Species, and if otherwise, of two: this is the fact, which they endeavour to ascertain, by such indications as are to be found. For it is to be further observed, that this fact being one which cannot be *directly* known, the consequence is, that the *marks* by which any Species of Animal or Plant is *known*, are not the very Differentia which *constitutes* that Species. Now, in the case of unorganized beings, these two coincide; the marks by which a diamond, *e. g.*, is distinguished from other minerals, being the very Differentia that constitutes the Species Diamond. And the same is the case in the *Genera* of organized beings likewise: the Linnæan Genus "felis," *e. g.*, (when considered as a Species) is distinguished from others under the same Order, by those very marks which constitute its Differentia. But in the Infimæ Species (according to the view of a Naturalist) of plants and animals, this, as has been said, is not the case; since here the Differentia which constitutes each Species includes in it a circumstance which cannot be directly ascertained (*viz.* the being sprung from the same stock), but which we conjecture from circumstances of resemblance; so that the *marks* by which a Species is known, are not in truth the whole of the Differentia itself, but *indications* of the existence of that Differentia; *viz.* indications of descent from a common stock*.

Mark by which a Species is known not always the Differentia.

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* There are few, and but a few, other Species to which the same observations will in a great degree apply; I mean in which the *Differentia* which *constitutes* the Species, and the *mark* by which the Species is *known*, are not the same: *e. g.* "Murder:" the Differentia of which is that it be committed "with malice aforethought;" this cannot be *directly* ascertained; and therefore we distinguish a murder from any other homicide by circumstances of preparation, *&c.*, which are not in reality the Differentia, but indications of the Differentia; *i. e.* grounds for concluding that the malice did exist.

Hence it is that Species, in the case of organized beings, appears to be something real, and independent of our thoughts and language; and hence, naturally enough, the same notions have been often extended to the *Genera* also, and to Species of *other things:* so that men have an idea of each individual of every description *truly* belonging to some one Species and no other; and each Species in like manner to some one Genus; whether we happen to be right or not in the ones to which we refer them.

Few, if any indeed, in the present day avow and maintain this doctrine; but those who are not especially on their guard, are perpetually sliding into it unawares.

Ambiguity of the words "same," "one," &c.

Nothing so much conduces to this as the transferred and secondary use of the words "same*," "one and the same," "identical," *&c.* when it is not clearly perceived and carefully borne in mind, that they *are* employed in a secondary sense, and *that* more frequently even than in the primary.

Suppose, *e. g.*, a thousand persons are thinking of the Sun, it is evident it is one and the same individual object on which all these minds are employed; so far all is clear: but suppose all these persons are thinking of a Triangle;—not any individual triangle, but Triangle in general;—and considering, perhaps, the equality of its angles to two right angles; it would seem as if, in this case also, their minds were all employed on "one and the same" object: and this object of their thoughts, it may be said, cannot be the *mere word* triangle, but that which is *meant* by it; nor again, can it be everything that the word will apply to, for they are not thinking of *triangles*, but of *one* thing. Those who do not acknowledge that this "one thing" has an existence independent of the human mind, are in general content to tell us, by way of explanation, that the object of their thoughts is the abstract "idea" of a triangle*; an explanation which satisfies, or at least silences many; though it may be doubted whether they very clearly understand what sort of a thing an "idea" is, which may thus exist in a thousand different minds at once, and yet be "one and the same."

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* See Appendix, No. I, art. *Same.*

The fact is, that "unity" and "sameness" are in such cases employed, not in the primary sense, but to denote perfect *similarity*. When we say that ten thousand different persons have all "one and the same" Idea in their minds, or are all of "one and the same" Opinion, we mean no more than that they are all *thinking exactly*

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* *Conceptualists* is a name sometimes applied to those who adopt this explanation; to which class Locke is referred.

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APPENDIX.

No. I.

ON CERTAIN TERMS WHICH ARE PECULIARLY LIABLE TO BE USED AMBIGUOUSLY.

It has appeared to me desirable to illustrate the importance of attending to the ambiguity of terms by a greater number of instances than could have been conveniently either inserted in the context or introduced in a note, without too much interrupting the course of the discussion of Fallacies.

I have purposely selected instances from various subjects, and some from the most important; being convinced that the disregard and contempt with which logical studies are usually treated, may be traced, in part, to a notion, that the science is incapable of useful application to any matters of real importance, and is merely calculated to afford an exercise of ingenuity on insignificant truisms;—syllogisms to prove that a horse is an animal, and distinctions of the different senses of "canis" or "gallus:" a mistake which is likely to derive some countenance (however unfairly) from the *exclusive* employment of such trifling exemplifications.

The words and phrases which may be employed as ambiguous middle terms are of course innumerable; but it may be in several respects of service to the learner, to explain the ambiguity of a few of those most frequently occurring in the most important discussions, and whose double meaning has been the most frequently overlooked; and this, not by entering into an examination of *all* the senses in which each term is ever employed, but of those only which are the most liable to be confounded together.

It is worth observing, that the words whose ambiguity is the most frequently overlooked, and is productive of the greatest amount of confusion of thought and fallacy, are among the *commonest*, and are those of whose meaning the generality consider there is the least room to doubt. It is indeed from those very circumstances that the danger arises; words in very common use are both the most liable, from the looseness of ordinary discourse, to slide from one sense into another, and also the least likely to have that ambiguity suspected. *Familiar acquaintance* is perpetually mistaken for *accurate knowledge.*

It may be necessary here to remark, that inaccuracy not unfrequently occurs in the employment of the very phrase, "such an author uses such a word in this, or that sense," or "means so and so, by this word." We should not use these expressions (as some have inadvertently done) in reference, necessarily, to the notion which may exist, *in the author's* mind, of the *object* in question; of which the notions *conveyed* to *others* by the *word* may often fall short: nor again should we regard the sense in which they understand him, as necessarily *his* sense (though it is *their's*) of the word employed, since they may *mistake* his meaning; but we must consider what sense it is likely he expected and intended to convey, to those to whom he addressed himself. And a judicious writer will always expect each word to be understood, as nearly as the context will allow, in the sense, or in one of the senses, which use has established, except so far as he may have given some different explanation. But there are many who, from various causes, frequently fail of conveying the sense they design.

ARGUMENT, in the strict logical sense, has been defined in the foregoing treatise; (Compendium, Part iii. § 1) in that sense it includes (as is there remarked) the Conclusion as well as the Premises: and thus it is, that we say a Syllogism consists of *three* propositions; *viz.*, the Conclusion which is proved, as well as those by which it is proved.

But in ordinary discourse, Argument is very often used for the Premises alone, in contradistinction to the Conclusion; *e. g.* "the Conclusion which this Argument is intended to establish is so and so."

It is also sometimes employed to denote what is, strictly speaking, a *course or series* of such Arguments; when a certain Conclusion is established by Premises, which are themselves, in the same dissertation, proved by other propositions, and perhaps those again, by others; the whole of this dissertation is often called an *Argument* to prove the ultimate conclusion designed to be established; though in fact it is a *train* of Arguments. It is in this sense, *e. g.*, that we speak of "Warburton's *Argument* to prove the divine legation of Moses," *&c.*

Sometimes also the word is used to denote what may be properly called a *Disputation; i. e. two* trains of argument, opposed to each other: as when we say that A and B had a long Argument on such and such a subject; and that A had the best of the Argument. Doubtless the use of the word in this sense has contributed to foster the notion entertained by many, that Logic is the "art of wrangling," that it makes men contentious, *&c.*: they have heard that it is employed about *Arguments;* and hastily conclude that it is confined to cases where there is *opposition and contest.*

It may be worth mentioning in this place, that the *various forms of stating* an Argument are sometimes spoken of as *different kinds* of Argument: as when we speak of a Categorical or Hypothetical Argument, or of one in the first or some other figure: though every logician knows that the same individual Argument may be stated in various figures, *&c.*

This no doubt has contributed to the error of those who speak of the Syllogism as a peculiar kind of Argument, and of "Syllogistic Reasoning," as a distinct mode of Reasoning, instead of being only a certain form of *expressing any* argument.

CAN.—*See* "MAY."

CAPABLE.—*See* "POSSIBLE," "IMPOSSIBLE," and "NECESSARY."

CASE.—Sometimes Grammarians use this word to signify (which is its strict sense) a certain "variation in the writing and utterance of a Noun, denoting the relation in which it stands to some other part of the sentence;" sometimes to denote *that relation itself;* whether indicated by the termination, or by a preposition, or by its collocation; and there is hardly any writer on the Subject who does not occasionally employ the term in each sense, without explaining the ambiguity. Much confusion and frivolous debate has hence resulted. Whoever would see a specimen of this, may find it in the Port Royal Greek Grammar; in which the Authors insist on giving the Greek language an *Ablative case,* with the same termination, however, as the

Dative; (though, by the way, they had better have fixed on the *Genitive*, which oftener answers to the Latin Ablative) urging, and with great truth, that if a distinct termination be necessary to constitute a case, many Latin Nouns will be without an Ablative, some without a Genitive or without a Dative, and all Neuters without an Accusative. And they add, that since it is possible, in every instance, to render into Greek the Latin Ablative, consequently there must be an Ablative in Greek. If they had known and recollected, that in the language of Lapland there are, as we are told, thirteen Cases, they would have hesitated to use an argument which would prove that there must therefore be thirteen Cases in Greek and Latin also! All this confusion might have been avoided, if it had but been observed that the word "Case" is used in two senses.

CAUSE.—*See* "REASON," and "WHY."

CERTAIN.—This is a word whose ambiguity, together with that of many others of kindred signification (as "may," "can," "must," "possible," *&c.*) has occasioned infinite perplexity in discussions on some of the most important subjects; such as the freedom of human actions, the divine foreknowledge, *&c.*

In its primary sense, it is applied (according to its etymology from *cerno*) to the state of a person's mind; denoting any one's full and complete conviction; and, generally, though not always, implying that there is sufficient *ground* for such conviction. It was thence easily transferred to the *truths or events*, respecting which this conviction is rationally entertained. And Uncertain (as well as the substantives and adverbs derived from these adjectives) follows the same rule. Thus we say, "it is certain th battle has been fought:" "it is certain that the moon will be full on such a day:" "it is uncertain whether such a one is alive or dead:" "it is uncertain whether it will rain to-morrow:" meaning, in these and in all other cases, that *we* are certain or uncertain respectively; not indicating any difference in the character of the *events* themselves, except in reference to our knowledge respecting them; for the same thing may be, at the same time, both certain and uncertain, to different individuals; *e. g.* the life or death, at a particular time, of any one, is certain, to his friends on the spot; uncertain or contingent, to those at a distance. From not attending to this circumstance, the words "uncertain" and "contingent" (which is employed nearly in the same sense as uncertain in its secondary meaning) have been considered by many writers* as denoting some quality in the things themselves, and have thus become involved in endless confusion. "Contingent" is indeed applied to events only, not to persons; but it denotes no quality in the events themselves; only, as has been said, the relation in which they stand to a person who has no complete knowledge respecting them. It is from overlooking this principle, obvious as it is when once distinctly stated, that Chance or Fortune has come to be regarded as a real *agent*, and to have been, by the ancients, personified as a Goddess, and represented by statues.

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* Among others, Archbishop King, in his discourse on Predestination, has fallen into this error; as is explained in the Notes and the Appendix to my edition of that work.

It may be allowable to mention in this place, that I have been represented as coinciding with him as to the point in question, in a note to Mr. Davison's work on Prophecy; through a mistake, which the author candidly acknowledged, and has promised to rectify.

CHURCH is sometimes employed to signify *the* Church, *i. e.* the Universal or Catholic Church,—the Society comprehending in it all Christians, who are "Members one of another," and who compose the Body, of which Christ is the Head. Sometimes again it is employed to signify *a* Church; *i. e.* any one branch of that general Society; in which sense we read of the "Seven Churches in Asia;"—of St. Paul's having "the care of all the Churches," *&c.* This ambiguity has often greatly favoured the cause of the Church of Rome; which being admitted by her opponents to be a Church, *i. e.* a branch, though an unsound and corrupt one, of the universal Church of Christ, is thence assumed to be *the* Church,—the Society in which all men are called upon to enrol themselves.—*See the article* "Truth."

The Church is also not unfrequently used to denote the *Clergy*, in contradistinction to the Laity; as, when we speak of any one's being educated for the Church, meaning, "for the Ministry." Some would perhaps add that it is in this sense we speak of the *endowments* of the Church; since the immediate emolument of these is received by clergymen. But if it be considered that they receive it in the capacity of *public instructors* and spiritual pastors, these endowments may fairly be regarded as belonging, in a certain sense, to the whole body, for whose benefit they are, in this way, calculated; in the same manner as we consider, *e. g.*, the endowment of a professorship in a university, as a benefaction, not to the *professors* alone, but to the university at large.

BECAUSE.—*See* "Reason," and "Why."

ELECTION.—This is one of the terms which is often to all practical purposes ambiguous, when not employed, strictly speaking, in two different *senses*, but with different *applications*, according to that which is understood in conjunction with it.—*See* Ch. iii. § 10.

EXPERIENCE.—This word, in its strict sense, applies to events which have taken place within a person's own knowledge. Experience in this sense, of course, relates to the *past* alone. Thus it is that a man knows by experience what sufferings he has undergone in some disease, or what height the tide reached at a certain time and place.

More frequently the word is used to denote that Judgment which is derived from Experience in the primary sense, by reasoning from that, in combination with other data. Thus, a man may assert, on the ground of Experience, that he was cured of a disorder by such a medicine —that that medicine is, generally, beneficial in that disorder ;—that the tide may always be expected, under such circumstances, to rise to such a height. Strictly speaking, none of these can be known *by* Experience, but are conclusions derived *from* Experience. It is in this sense only that Experience can be applied to the *future*, or, which comes to the same thing, to any *general* fact ; as, *e. g.*, when it is said that we know by Experience that water exposed to a certain temperature will freeze.

There are again two different *applications* of the word (*see* Ch. iii. § 10), which, when not carefully distinguished, lead in practice to the same confusion as the employment of it in two senses ; *viz.* we sometimes understand, *our own* personal Experience ; sometimes, *general* Experience. Hume has availed himself of this (practical) ambiguity, in his Essay on Miracles ; in which he observes, that we have Experience of the frequent falsity of Testimony, but that the occurrence of a miracle is contrary to our Experience, and is consequently what no testimony ought to be allowed to establish. Now had he explained *whose* Experience he meant, the argument would have come to nothing: if he means, the Experience of mankind universally, *i. e.* that a Miracle *has never* come under the Experience of *any one*, this is palpably begging the question: if he means the Experience of each individual who has never himself witnessed a Miracle, this would establish a rule (*viz.* that we are to believe nothing of which we have not ourselves experienced the like) which it would argue insanity to act upon. Not only was the King of Bantam justified (as Hume himself admits) in listening to no evidence for the existence of Ice, but *no one would be authorized on this principle to expect his own death.* His Experience informs him directly only that *others* have died. Every disease under which *he himself* may have laboured, his Experience must have told him *has not* terminated fatally; if he is to judge strictly of the future by the past, according to this rule, what should hinder him from expecting the like of all future diseases? Probably he meant, if indeed he had any distinct meaning, something intermediate between these two; *viz.* the Experience of the *generality*, as to what is common and of ordinary occurrence; in which sense the maxim will only amount to this, that false Testimony is a thing of common occurrence, and that Miracles are not; an obvious truth, no doubt; but too general to authorize of itself a conclusion in any particular case. In any other individual question, as to the admissibility of evidence, it would be reckoned absurd to consider merely the *average chances* for the truth of *Testimony in the abstract*, without inquiring *what* the Testimony is, in the *particular instance* before us.

It is to be observed by the way, that there is yet an additional ambiguity in the *entire phrase* "contrary to experience;" in one sense, a miracle, or any other event, may be called *contrary* to the experience of any one who has *never witnessed* the like; as the freezing of water was to that of the King of Bantam; in another and stricter sense, that only is *contrary* to a man's experience, which he knows by experience not to be true; as if one should be told of an infallible remedy for some disorder, he having seen it administered without effect. No testimony can establish what is, *in this latter sense*, contrary to experience. We need not wonder that ordinary minds should be bewildered by a sophistical employment of such a mass of ambiguities.

Such reasonings as these are accounted ingenious and profound, on account of the Subject on which they are employed; if applied to the ordinary affairs of life, they would be deemed unworthy of serious notice.

FALSEHOOD and FALSITY.—*See* "TRUTH."

GOSPEL. This is instanced as one of the words which is practically ambiguous, from its different applications, even though not employed (as it sometimes is) in different senses.

Conformably to its etymological meaning of "Good-tidings," it is used to signify (and that especially and exclusively) the welcome intelligence of Salvation to man, as preached by our Lord and his followers. But it was afterwards transitively applied to each of the four histories of our Lord's life, published by those who are called the Evangelists. This is one source of some important theological errors; many supposing that Gospel-truth is to be found exclusively, or chiefly, in the *Gospels*; to the neglect of the other Sacred Writings. Again, since Jesus is said to have preached the "Gospel," and the same is said of the Apostles, the conclusion is often hence drawn, that the discourses of our Lord and the Apostolic Epistles must exactly coincide; and that in case of any apparent difference, the former must be the standard, and the latter must be taken to bear no other sense than what is implied by the other; a notion which leads inevitably and immediately to the neglect of the Apostolic Epistles, when everything they contain must be limited and modified into a complete coincidence with our Lord's Discourses. Whereas it is very conceivable, that though both might be in a certain sense "good-tidings," yet, one may contain a much more full development of the Christian scheme than the other; which is confirmed by the consideration, that the principal events on which the Religion is founded (the atoning sacrifice and resurrection of Christ) had not taken place, nor could be clearly declared by our Lord, when he preached, saying, "the Kingdom of Heaven is *at hand;*" not that it was actually *established;* as it was, when his Apostles were sent forth to preach to all nations.

HENCE.—*See* "REASON" and "WHY."

IDENTICAL.—*See* "ONE" and "SAME."

IMPOSSIBILITY. According to the definition we may choose to give of this word, it may be said either that there are three Species of it, or that it may be used in three different senses. 1st. What may be called a *mathematical* impossibility, is that which involves an absurdity and self-contradiction; *e. g.* that two straight lines should enclose a space, is not only impossible but inconceivable, as it would be at variance with the definition of a straight line. And it should be observed, that inability to accomplish anything which is, in this sense, impossible, impli[illegible] no limitation of *power*, and is compatible even with omnipotence, in the fullest sense of the word. If it be proposed, *e.g.* to construct a triangle having one of its sides equal to the other two, or to find two numbers having the same ratio to each other as the side of a square and its diameter, it is not from a defect of power that we are precluded from solving such a problem as these; since in fact the problem is in itself unmeaning and absurd: it is, in reality, *nothing*, that is required to be done.

2dly. What may be called a *Physical* Impossibility is something at variance with the existing Laws of Nature, and which consequently no Being, subject to those Laws, (as we are) can surmount; but we can easily conceive a Being capable of bringing about what in the ordinary course of Nature is impossible: *e. g.* to multiply five loaves into food for a multitude, or to walk on the surface of the waves, are things physically impossible, but imply no contradiction; on the contrary, we cannot but suppose that the Being, if there be such an one, who created the Universe, is able to alter at will the properties of any of the Substances it contains*.

And an occurrence of this character we call *miraculous*. Not but that one person may perform without supernatural power what is, to another, physically impossible; as *e. g.* a man may lift a great weight, which it would be physically impossible for a child to raise; because it is contrary to the Laws of Nature that a muscle of *this* degree of strength should overcome a resistance which one of *that* degree is equal to. But if any one perform what is beyond the natural powers of man universally, he has performed a miracle. Much Sophistry has been founded on the neglect of the distinction between these two senses. It has even been contended, that no evidence ought to induce a man of sense to admit that a miracle has taken place, on the ground that it is a thing impossible; in other words, that it *is a miracle;* for if it were *not* a thing impossible to man, there would be no miracle in the case: so that such an argument is palpably begging the question; but it has often probably been admitted from an indistinct notion being suggested of Impossibility in the first sense; in which sense (*viz.* that of self-contradiction) no evidence certainly would justify belief.

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* See an able disquisition on Miracles, subjoined to the Life of Apollonius Tyanæus, in the Encyclopædia Metropolitana.

3dly. *Moral* Impossibility signifies only that high degree of improbability which leaves no room for doubt. In this sense we often call a thing impossible, which implies no contradiction, or any violation of the Laws of Nature, but which yet we are rationally convinced will never occur, merely from the multitude of chances against it; as *e. g.* that unloaded dice should turn up the same faces one hundred times successively. And in this sense we cannot accurately draw the line, so as to determine at what point the improbability amounts to an Impossibility; and hence we often have occasion to speak of this or that as *almost* impossible, though not quite, *&c.* The other Impossibilities do not admit of degrees. That a certain throw should recur two or three times successively, we should not call very improbable; the improbability is increased at each successive step; but we cannot say exactly when it becomes impossible; though no one would scruple to call one hundred such recurrences impossible.

In the same sense we often call things impossible which are completely within the *power* of known agents to bring about, but which we are convinced no one of them ever *will* bring about. Thus, *e. g.* that all the civilized people in the world should with one accord forsake their habitations and wander about the world as savages, every one would call an impossibility, though it is plain they have the power to do so, and that it depends on their choice which they will do. In like manner, if we were told of a man's having disgracefully fled from his post, whom we knew to be possessed of the most undaunted courage, we should without scruple (and with good reason, supposing the idea formed of his character to be a just one) pronounce this an Impossibility; meaning, that there is sufficient ground for being fully convinced that the thing could never take place; not from any idea of his not having *power* and liberty to fly, if he would; for our certainty is built on the very circumstance of his being free to act as he will, together with his being of such a disposition as never to have the will to act disgracefully. If, again, a man were bound hand and foot, it would be, in the other sense, impossible for him to fly; *viz.* out of his *power*. "Capable" has a corresponding ambiguity.

The performance of anything that is *morally* impossible to a mere man, is to be reckoned a *miracle*, as much as if the impossibility were *physical*. *E. g.* It is morally impossible for poor Jewish fishermen to have framed such a scheme of ethical and religious doctrine as the Gospel exhibits. It is morally impossible for a man to foretell distant and improbable future events with the exactitude of many of the prophecies in the Old Testament.

Much of the confusion of thought which has pervaded, and has interminably protracted, the discussions respecting the long-agitated question of human freedom, has arisen from inattention to the ambiguity which has been here noticed. If the Deity, it is said, "foresees exactly what I shall do on any occasion, it must be *impossible for* me to act otherwise.;" and thence it is inferred that man's actions cannot be free. The middle term employed in such an argument as this is "impossible," or "impossibility" employed in two senses: he to whom it is, in one sense, impossible, (*viz. physically*) to act otherwise than he does, *i. e.* who has it not in his *power*, is not a free agent; correct foreknowledge implies impossibility in another sense, *viz.* that which consists in impossibility;—the absence of all room for *doubt*[*]. And the perplexity is aggravated by resorting, for the purpose of explanation, to such words as "may," "can," "possible," "must," *&c.*, all of which are affected by a corresponding ambiguity. (See Tucker's "Light of Nature," in the Chapters on Providence, on Free-will, and some others.) I have endeavoured to condense and to simplify some of the most valuable parts of his reasonings, in the notes and appendix to an edition of Archbishop King's Discourse on Predestination.

LAW is, etymologically, that which is "laid" down;

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[*] It should be observed, that many things which are not usually termed "mathematically" necessary or impossible, will at once appear such, when stated, not *abstractedly*, but with all their real circumstances: *e. g.* that "Brutus stabbed Cæsar," is a fact, the denial of which, though a falsehood, would not be regarded as self-contradictory (like the denial of the equality of two right angles); because, *abstractedly*, we can conceive Brutus acting otherwise: but if we *insert the circumstances* (which of course really existed) of his having complete *power*, *liberty*, *and also a predominant will*, to do so, then the denial of the action amounts to a "mathematical" impossibility, or self-contradiction; for to act voluntarily against the dictates of a predominant will, implies an effect without a cause.

Of Future events, that Being, and no other, can have the same knowledge as of the past, who is acquainted with all the causes, remote or immediate, internal and external, on which each depends, and is used, in the most appropriate sense, to signify some general injunction, command, or regulation, addressed to certain Persons, who are called upon to conform to it. It is in this sense that we speak of " the Law of Moses," " the Law of the Land," *&c.*

It is also used in a transferred sense, to denote the statement of some *general fact*, the several individual instances of which exhibit a conformity to that statement, *analogous* to the conduct of persons in respect to a Law which they obey. It is in this sense that we speak of " the Laws of Nature :" when we say that " a seed in vegetating directs the radicle downwards and the plumule upwards, in compliance with a Law of Nature," we only mean that such is *universally the fact ;* and so, in other cases.

It is evident therefore that, in this sense, the conformity of individual cases to the general rule is that which *constitutes* a Law of Nature. If water should henceforth never become solid, at any temperature, then the freezing of water would no longer be a Law of Nature : whereas in the other sense, a Law is not the more or the less a Law from the conformity or non-conformity of individuals to it : if an act of our legislature were to be disobeyed and utterly disregarded by every one, it would not on that account be the less a Law.

This distinction may appear so obvious when plainly stated, as hardly to need mention : yet writers of great note and ability have confounded these two senses together ; I need only mention Hooker (in the opening of his great work) and Montesquieu : the latter of whom declaims on the much stricter observance in the Universe of the Laws of Nature, than in mankind, of the divine and human Laws laid down for their conduct ; not considering that, in the former case, it is the observance that *constitutes* the Law.

MAY, and likewise MUST, and CAN, (as well as CANNOT) are each used in two senses, which are very often confounded together. They relate sometimes to *Power*, sometimes to *Contingency*.

When we say of one who has obtained a certain sum of money, " now he *may* purchase the field he was wishing for," we mean that it is in his *power:* it is plain that he *may*, in the same sense, hoard up the money, or spend it on something else; though perhaps we are quite sure, from our knowledge of his character and situation, that he will not. When again we say, " it may rain to-morrow," or " the vessel may have arrived in port, the expression does not at all relate to power, but merely to contingency; *i. e.* we mean, that though we are not sure such an event will happen or has happened, we are not sure of the reverse.

When, again, we say " this man, of so grateful a disposition, *must* have eagerly embraced such an opportunity of requiting his benefactor," or " one who approves of the slave trade *must* be very hard-hearted," we only mean to imply the absence of all *doubt* on these points. The very notions of gratitude and of hard-heartedness exclude the idea of *compulsion*. But when we say that " all men *must* die," or that " a man *must* go to prison who is dragged by force," we mean " whether they will or not" —that there is no *power* to resist. So also if we say that a Being of perfect goodness " *cannot*" act wrong, we do not mean that it is out of his *power*, since that would imply no goodness of character; but that there is good reason for feeling sure that he *will* not: it is in a very different sense that we say of a man fettered in a prison, that he " *cannot*" escape; meaning, that though he has the *will*, he wants the *ability*.

These words are commonly introduced, in questions connected with Fatalism and the Freedom of human actions, to explain the meaning of "necessary," "impossible," *&c.*; and having themselves a corresponding ambiguity, they only tend to increase the perplexity.

> "——— Chaos umpire sits,
> And by deciding worse embroils the fray."

MUST.—*See* "MAY."

NECESSARY. This word is used as the contrary to "impossible" in all its senses, and is of course liable to a corresponding ambiguity. Thus it is "mathematically Necessary" that two sides of a triangle should be greater than the third; there is a "physical Necessity" for the fall of a stone; and a "moral Necessity" that a Being of a certain character should act, when left perfectly free, conformably to that character; *i. e.* we are sure he *will* act so; though of course it is in his power to act otherwise, else there would be no moral agency.* This ambiguity is employed sophistically to justify immoral conduct; since no one is *responsible* for anything done under "necessity," —*i. e.* physical necessity; as when a man is dragged anywhere by external force, or falls down from being too weak to stand; and then the same excuse is fallaciously extended to "moral necessity" also.

There are likewise numberless different *applications* of the word "necessary" (as well as of those derived from it) in which there is a practical ambiguity, from the difference of the things *understood in conjunction* with it: *e. g.* food is "necessary;" viz.—to life: great wealth is "necessary"—to the gratification of a man of luxurious habits; the violation of moral duty is in many cases "necessary"—for the attainment of certain worldly objects; the renunciation of such objects, and subjugation of the desires is "necessary"—to the attainment of the Gospel promises, *&c.* And thus it is that "necessity" has come to be "the tyrant's plea;" for as no one is at all responsible for what is a matter of physical necessity,—what he has no power to avoid,— so, a degree of allowance is made for a man's doing what he *has* power to avoid, when it appears to be the least of two evils; as, *e. g.*, when a man who is famishing takes the first food he meets with, as "necessary" to support life, or throws over goods in a storm, when it is "necessary," in order to save the ship. But if the plea of necessity be admitted without inquiring *for what* the act in question is necessary, anything whatever may be thus vindicated; since no one commits any crime which is not, in his view, "necessary" to the attainment of some supposed advantage or gratification.

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* See the article "Impossibility:" note.

I have treated more fully on this fruitful source of sophistry in the Appendix (No. 1.) to King's "Discourse on Predestination." In the course of it, I suggested an etymology of the word, which I have reason to think is not correct; but it should be observed, that this makes no difference in the reasoning, which is not in any degree founded on that etymology; nor have I, as some have represented, attempted to introduce any new or unusual sense of the word, but have all along appealed to *common use*,—the only right standard,—and merely pointed out the senses in which each word *has actually* been employed.

OLD.—This word, in its strict and primary sense, denotes the *length* of time that any object has existed; and many are not aware that they are accustomed to use it in any other. It is, however, very frequently employed instead of "Ancient," to denote *distance* of time. The same transition seems to have taken place in Latin.

Horace says of Lucilius, who was one of the most *ancient* Roman authors, but who did not live to be *old*,—

> ——— "quo fit ut omnis
> Votiva pateat veluti descripta tabella
> Vita *Senis*."

The present is a remarkable instance of the influence of an ambiguous word over the thoughts even of those who are not *ignorant* of the ambiguity, but are not carefully on the watch against its effects; the impressions and ideas associated by habit with the word when used in one sense, being always apt to obtrude themselves unawares, when it is employed in another sense, and thus to affect our reasonings: *e. g.* "*Old* times,"—"the *Old* World," *&c.* are expressions in frequent use, and which, oftener than not, produce imperceptibly the associated impression of the superior wisdom resulting from experience, which, as a general rule, we attribute to Old *men*. Yet no one is really ignorant that the world is older now than ever it was; and that the instruction to be derived from observations on the past (which is the advantage that *Old persons* possess) must be greater, supposing other things equal, to every successive generation: and Bacon's remark to this purpose appears, as soon as distinctly stated, a mere truism; yet few, perhaps, that he made, are more important. There is always a tendency to appeal with the same kind of deference to the authority of "Old times," as of aged men.

It should be kept in mind, however, that ancient *customs, institutions, &c.* when they *still exist*, may be literally called Old; and have this advantage attending them, that their effects may be estimated from long experience; whereas we cannot be sure, respecting any recently-established Law or System, whether it may not produce in time some effects which were not originally contemplated.

ONE—is sometimes employed to denote strict and proper Unity, sometimes close Resemblance; correspondence with one single description.—*See* "Same."

————————"Facies non omnibus UNA,
Nec diversa tamen, qualem decet esse sororum."
Ov. Metam. b. ii.

It is in the secondary or improper, not the primary and proper sense of this word, that men are exhorted to "be of one mind;" i. e. to agree in their faith, pursuits, mutual affections, &c.

It is also in this sense that two guineas *e. g.* struck from a wedge of uniform fineness, are said to be "of one and the same form and weight," and also, "of one and the same substance." In this secondary or improper sense also, a child is said to be "of One and the same (bodily) substance with its mother;" or, simply "of the substance of its mother:" for these two pieces of money, and two human Beings, are *numerically* distinct.

It is evidently most important to keep steadily in view, and to explain on proper occasions, these different uses of the word; lest men should insensibly slide into error on the most important of all subjects, by applying, in the secondary sense, expressions which ought to be understood in the primary and proper.—*See* "Person."

PERSON—in its ordinary use, always implies a numerically distinct Substance: each man is one Person, and can be but one. It has, besides, a peculiar theological sense, more closely connected with its etymology. It is well known that the Latin word Persona signified, originally, a *Mask* which actors wore on the stage; each of which being painted in each instance suitably to the character to be represented, and worn by every one who acted the part, the word came to signify the character itself which the actor played; and afterwards, any character, proper or assumed, which any one sustained; as *e. g.* in a passage of Cicero (de Oratore), where he is describing the process by which he composed his pleadings, by imagining himself in the place of his opponent, and of the Judge, as well as his own: "tres Personas unus suscipio, summa animi æquitate; meam, adversarii, judicis." We should render this by saying, "I assume these three characters," or, "I place myself in these three situations." The further transition, by which Persona, and, as Anglicized by us, Person, came to signify commonly a distinct Being, is very natural; though I believe it never took place while the purity of the Latin idiom lasted.

Persona, in some sense, not far remote, it may be supposed, from its classical signification[*], was adopted by Theologians to distinguish the Father, the Son, and the Holy Spirit in the blessed Trinity, so as to imply the strict and proper unity of the Divine Being, who is all and each of these[†]; and the word Person was employed by our divines as a literal, or rather, perhaps, an etymological, translation of the Latin word Persona. In this sense, its difference from Person, as employed in ordinary discourse (in which however it seems to have been much less common at the time when our liturgy, &c. were framed, than in the present day) is of the highest importance; since it is evident that "three divine Persons," in the ordinary meaning of the word, is precisely equivalent to "three Gods." Our Church, however, not only retains a creed which expressly declares the Son to be "of one Substance with the Father *;" but throughout maintains and inculcates unequivocally the strict Unity of the Supreme Being; though she has been charged with teaching contradictions, when she teaches (what surely is not at all contradictory) that what is three in one sense, may, in another sense, be one.

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[*] For the commonly received sense of a word, or the nearest to it that the context will admit, is that in which an author should calculate on being understood, as far as he does not explain to the contrary.

[†] With a like view the Greek Theologians adopted the word Hypostasis; which seems calculated to express "that which *stands under* (*i. e.* is *subject to*) Attributes." They designed, it may be presumed, to guard against the suspicion of teaching, on the one hand, that there are three Gods, or three parts of the One God, or, on the other hand, that Father, Son, and Holy Ghost, are no more than three names, all of the same signification; and they employed accordingly a term which might serve to denote, that (though divine Attributes belong to all and each of these, yet) there are Attributes of each respectively, which are not so strictly applicable to either of the others, as such; as when, *e. g.*, the Son is called especially

Whether it be not unfortunate that the word Person should have been introduced at all in a sense different in a most important particular from its ordinary one, (in the present day at least,) yet not so totally remote from that ordinary sense, as to leave no room for the possibility of

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the "Redeemer," the Holy Spirit, the "Comforter or Paraclete," *&c.* The notion thus conveyed is indeed very *faint* and *imperfect;* but is, perhaps, for that very reason, (considering what man is, and what God is) the less likely to lead to error. A blind man may have conveyed to him a notion of seeing, correct as far as it goes, and instructive to him, though very imperfect: if he form a more full and *distinct* notion of it his ideas will inevitably be *incorrect.*

It is worth observing, as a striking instance of the little reliance to be placed on Etymology as a guide to the meaning of a word, that 'Υποστασις, "Substantia" and "understanding," so widely different in sense, correspond in their etymology.

* This, *by itself,* would not have been a sufficient guard. See the remarks under the preceding article.

perplexity, or mistake, it is of little use now to inquire. It is worth remarking, however, that our Reformers appear to have introduced it only from a desire to render faithfully what they translated; seeming, in most instances, where they composed anything *original* for the use of the people, rather to abstain from it: it does not occur, *e. g.* in the Collect (though it does in the Communion-Preface) for Trinity Sunday; nor in the brief but satisfactory summary of the chief doctrines of the Apostles' Creed, contained in the Catechism. In this our Church, very wisely and scripturally, sets before us the relations in which the Most High stands towards us, of Maker *, Redeemer, and Sanctifier; thus adhering to the apparent design of Holy Writ, which seems to be, for the most part, to reveal to us (at least to insist on among the essential articles of Faith) with a view to our practical benefit, not so much what the Deity is in Himself, as what He is relatively to us. They were wise therefore in judging, that whatever other distinctions between Father, Son, and Holy Ghost, do really exist in the Divine Essence, but are not, either relative to us, or, in some way connected with a Christian life, are at least not to be prominently set forth and dwelt on; at any rate, till we have fully embraced and applied those many doctrines which *are* calculated, faintly as we can comprehend them, to influence our feelings and conduct †. Nothing can be more decidedly established by Scripture, nothing more *indistinctly explained*, (except as far as relates to *us*) than the doctrine of the Trinity; which however we are perhaps incapable, with our present faculties, of comprehending more fully, and consequently those are liable to fall into error who pursue their inquiries into a subject so awfully mysterious as the nature of God, and seek for clear notions of what Scripture has but dimly revealed. And as it is wise to reserve for mature age such theological instructions as are unsuitable to a puerile understanding, so it seems the part of a like wisdom, to abstain, during this our state of childhood, from curious speculations on subjects in which even the ablest of human beings can but "see through a glass, darkly."

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* *Q.* "What dost thou chiefly learn, in these articles of thy "belief? *A.* First, I learn to believe in God the Father, who "made me, and all the world: secondly, in God the Son, who "redeemed me and all mankind: thirdly, in God the Holy "Ghost, who sanctifieth me and all the elect people of God."

† Compare together, for instance, such passages as the following; for it is by *comparing* Scripture with Scripture, not by dwelling on *insulated* texts, that the Word of God is to be rightly

So far however have some writers been from imitating this prudent and modest caution, that I have even seen popular explanations of the very explanation last alluded to in the Catechism, in which the word Person is introduced without even any allusion to its being used in a peculiar sense. If it be vain to explain the unknown by the unknown, it is surely not a little incautious to attempt explaining what was already made as simple and intelligible as perhaps it could be, to children, by a word which they are likely, not merely to fail of understanding, but to misunderstand.

The consequences of this practice, which unfortunately is very common, are more extensively mischievous than most men are aware. To the undetected or unexplained ambiguity of the word Person, may be traced, ultimately, a large portion of the Socinianism, Arianism, and Infi-

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understood. Luke i. 35, and John xiv. 9. John xiv. 16—18, 26. Matt. xxviii. 19, 20. John, xvi. 7. Coloss. ii. 9. Philip. i. 19. 1st. Cor. vi. 19, Matt. x. 20. John xiv. 23.

delity that prevail. It is not wonderful that the unthinking, when they have never heard any explanation of the ambiguity, should be persuaded to renounce a Faith which is represented to them, for want of that explanation, as involving a contradiction, or as leading to Tritheism; and many who do understand, or at least have once understood, the ambiguity in question, are apt (and the same takes place in numberless other cases) to sit down satisfied, that they are in consequence safe from all danger in that quarter; not considering how much the thoughts are habitually influenced, through the force of association, by the recurrence of the ordinary sense of the word to the mind of those who are not especially on their guard against it. (*See* Fallacies, Ch. iii. § 5.) And hence the frequent use, in other subjects, of the word Person, in its ordinary sense, causes them to slide insensibly into the unthought-of*, but, I fear, not uncommon, heresy of

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* Unthought-of, because no one in so many words acknowledges three Gods; even Milton does not so express himself: the *surprise*, however, of some, at the open avowal of the Arian doctrine (which may be regarded as one branch of Tritheism), in his work lately brought to light, would alone have justified some suspicion (considering what is to be found in the "Paradise Lost,") that there was at least a prevailing want of caution on this point. The correctness of a *formal* and *deliberate confession* of faith, is not always, of itself, a sufficient security against error in the *habitual impressions* on the mind. The Romanists flatter themselves that they are secure from Idolatry, because they distinctly acknowledge the truth that "God only is to be *served*;" *viz.*, with "Latria;" though they allow *Adoration*,—"hyperdulia," and "dulia," to the Virgin and other Saints, to Images, and to Relics: to which it has been justly replied, that, supposing this distinction correct in itself, it would be, in practice, nugatory; since the mass of people must soon (as experience has proved) lose sight of it entirely in their habitual devotions.

Tritheism; from which they think themselves the more secure, because they always maintain the Unity of the Deity; though they gradually come to understand that Unity in a merely *figurative* sense: *viz.*, as a Unity of Substance (in the sense noticed in the preceding article,) a Unity of purpose,—concert of action, &c., just as any one commonly says, " My friend such-an-one and myself are one;" meaning that they pursue the same designs with entire mutual confidence, and perfect co-operation, and have that exact agreement in opinions, views, tastes, *&c.* which is often denoted by the expression, " one mind." (See " ONE," and " SAME," in this Appendix, and Dissertation, Ch. v.)

The error of Tritheism, thus introduced, is indeed one which can hardly be regarded as in itself trifling, if we reflect that the maintenance of the doctrine of the strict Unity of God was no small part of the great purpose for which one nation was, during so many ages, kept apart from the rest of the world; but the incidental effects hence resulting are far more important. I mean, not only that many are by this means (as was above remarked) driven into a perversion of the Gospel-truth on the opposite side, or a total rejection of it, but also that a far greater number of well-intentioned Christians are led to the practical *neglect* of a doctrine which is the corner-stone of our Faith: being indeed the very doctrine into which we are baptized. They find their minds so perplexed and confused by the ordinary statements of the doctrine of the Trinity, and in such danger of sliding into Tritheism, that while they humbly yield their assent, they at the same time (I say this, in a great measure, not from conjecture, but from knowledge of the fact) deliberately, and as a point of conscience, study to keep the doctrine out of their thoughts; though it ought to be the spring-head of those Christian principles which are called for in Christian practice every day. And they often justify to themselves this procedure, on the ground that they are not sufficiently *learned* Theologians, nor possessed of sufficient mental powers, to meddle with such abstruse and mysterious points; not considering that a mystery inscrutable to man, as man,—surpassing the utmost reach of human intellect, must be such to the learned and to the ignorant, to the wise and to the simple, alike. In utter darkness, the strongest sight and the weakest are on a level.

Not unfrequently, I fear, do those who can, and should, clear up for them these factitious difficulties, content themselves with saying, that the whole subject is mysterious, and must not be too carefully pried into; not noticing the difference between divine revelations and human expositions of them; between inquiries into the mysteries of the Divine nature*, and into the mysteries arising from the ambiguity of language; and that too, language framed, as in the present case, by uninspired men. What Scripture declares, the Christian is bound implicitly to receive, however unable even to understand what is declared: but to claim an uninquiring assent to expressions of man's framing, without even an attempt to ascertain their meaning, is surely (however excellent the expressions may in fact be) to fall into one of the worst errors of the Romanists.

Most of the foregoing observations will apply to the word "Personality."

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* "Sir, in these matters," (said one of our Reformers, respecting another mysterious point,) "I am so fearful, that I dare speak no further, yea, almost none otherwise, than as the Scripture doth as it were lead me by the hand."

If it should appear to any that this discussion has exceeded its proper limits, let it be remembered, that the present is one of the most remarkable and most important instances of the mischiefs resulting from inattention to the ambiguity of terms.

POSSIBLE.—This word, like the others of kindred meaning, relates sometimes to *contingency*, sometimes to *power;* and these two senses are frequently confounded. In the first sense we say, *e. g.* "it is possible this patient may recover," not meaning, that it depends on his choice; but that we are not sure whether the event will not be such. In the other sense it is "possible" to the best man to violate every rule of morality; since if it were out of his *power* to act so if he chose it, there would be no moral goodness in the case; though we are quite sure that such never will be his choice.—*See* "IMPOSSIBLE."

PRIEST.—*See* "DISSERTATION," Ch. iv. § 2.

Etymologically, the word answers to Presbyter, *i. e.* Elder of the Christian Church; and is often applied to the second order of Christian Ministers at the present day. But it is remarkable that it never occurs in this sense, in our translation of the Scriptures: the word πρεσβύτερος being always rendered by Elder; and its derivative, Priest, always given as the translation of 'Ιερεὺς. This latter is an office assigned to none under the Gospel-scheme, except the ONE great High Priest, of whom the Jewish Priests were types, and who offered a sacrifice (that being the most distinguishing office of a Priest in the sense of 'Ιερεὺς) which is the only one under the Gospel.

It is incalculable how much confusion has arisen from confounding together the two senses of the word Priest, and thence, the two offices themselves.

I have enlarged accordingly on this subject in a Sermon, preached before the University of Oxford, and subjoined to the last edition of the Bampton Lectures.

REASON.—This word is liable to many ambiguities, of which I propose to notice only a few of the most important. Sometimes it is used to signify all the intellectual powers collectively; in which sense it can hardly be said to be altogether denied to brutes; since several of what we reckon intellectual processes in the human mind, are evidently such as some brutes are capable of.

Reason is, however, frequently employed to denote those intellectual powers exclusively in which man *differs* from brutes; though what these are no one has been able precisely to define. The employment at will of the faculty of Abstraction seems to be the principal; that being, at least, principally concerned in the use of Language. The Moral faculty, or power of distinguishing right from wrong, (which appears also to be closely connected with Abstraction,) is one of which brutes are destitute; but then Dr. Paley and some other ethical writers deny it to man also. The description given by that author of our discernment of good and bad conduct, (*viz.* as wholly dependent on expectation of reward and punishment,) would equally apply to many of the brute-creation, especially the Dog. It is in this sense, however, that some writers speak of "*Reason*" as enabling us to judge of virtue and vice; not, as Dr. Campbell in his Philosophy of Rhetoric has understood them, in the sense of the power of *argumentation*.

Reason, however, is often used for the faculty of carrying on the third operation of the mind; *viz.* *Reasoning*.

And it is from inattention to this ambiguity (which has been repeatedly noticed in the course of the foregoing treatise), that some have treated of Logic as the art of rightly employing the mental faculties in general.

Reason is also employed to signify the Premiss or Premises of an argument; and it is from Reason in this sense that the word "Reasoning" is derived.

It is also very frequently used to signify a *Cause:* as when we say, in popular language, that the "Reason of an eclipse of the sun is, that the moon is interposed between it and the earth." This should be strictly called the *cause.* On the other hand "Because" (*i.e.* by Cause) is used to introduce either the Physical Cause or the Logical Proof: and "Therefore," "Hence," "Since," "Follow," "Consequence," and many other kindred words, have a corresponding ambiguity: *e.g.* "the ground is wet, *because* it has rained;" or "it has rained, and hence the ground is wet;" this is the assignment of the *Cause:* again "it has rained, *because* the ground is wet;" "the ground is wet, and *therefore* it has rained;" this is assigning the logical *proof:* the wetness of the ground is the cause, not of the rain having fallen, but of *our knowing* that it has fallen. And this probably it is that has led to the ambiguous use in all languages of almost all the words relating to these two points. It is an ambiguity which has produced incalculable confusion of thought, and from which it is the harder to escape, on account of its extending to those very forms of expression which are introduced in order to clear it up.

What adds to the confusion is, that the Cause is often employed as a Proof of the effect; as when we infer, from a great fall of rain, that there is, or will be, a flood; which is at once the physical effect, and the logical conclusion. The case is just reversed, when from a flood we infer that the rain has fallen.

The more attention any one bestows on this ambiguity, the more extensive and important its results will appear. —See Analytical Outline, § 2.

REGENERATION.—This word is employed by some Divines to signify the actual new life and character which ought to distinguish the Christian; by others, a release from a state of condemnation,—a reconciliation to God,—adoption as his children, *&c.*[*], which is a necessary *preliminary* to the entrance on such a state; (but which, unhappily, is not invariably followed by it: and these are, of course, as different things as a grain of seed sown, and "the full corn in the ear."

Much controversy has taken place as to the time at which, and the circumstances under which, "Regeneration" takes place; the greater part of which may be traced to this ambiguity.

SAME (as well as "One," "Identical," and other words derived from them) is used frequently in a sense very different from its primary one, as applicable to a *single* object; being employed to denote great *similarity*. When several objects are undistinguishably alike, *One single description* will apply equally to any of them; and thence they are said to be all of *one and the same* nature, appearance, *&c.*: as *e. g.* when we say, "this house is built of the *same* stone with such another," we only mean that the stones are undistinguishable in their qualities; not, that the one building was pulled down, and the other constructed with the materials. Whereas Sameness, in the primary sense, does not even necessarily imply Similarity; for if we say of any man that he is greatly altered since such a time, we understand, and indeed imply by the very expression, that he is *One person,* though different in several qualities. It is worth observing also, that Same, in the secondary sense, admits, according to popular usage, of *degrees:* we speak of two things being *nearly* the same, but not entirely: personal identity does not admit of degrees.

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[*] ". . . . Baptism, wherein *I was made* a member of Christ, "a child of God, and an inheritor of the Kingdom of Heaven." . . . . "A death unto sin, and a new birth unto righteousness, *&c.*" . . . . "We, being regenerate, and made thy children by adoption and grace, *&c.*"

Nothing, perhaps, has contributed more to the error of Realism than inattention to this ambiguity. When several persons are said to have *One and the Same* opinion, thought, or idea, men, overlooking the true simple statement of the case, which is, that they *are all thinking alike,* look for something more abstruse and mystical, and imagine there must be some *One Thing,* in the primary sense, though not an individual, which is present at once in the mind of each of these persons: and thence readily sprung Plato's theory of Ideas, each of which was, according to him, one real, eternal object, existing entire and complete in each of the individual objects that are known by one name. Hence, first in poetical mythology, and ultimately, perhaps, in popular belief, Fortune, Liberty, Prudence, (Minerva,) a Boundary, (Terminus,) and even the Mildew of Corn, (Rubigo,) *&c.*, became personified, deified, and represented by Statues; somewhat according to the process which is described by Swift, in his humorous manner, in speaking of Zeal, (in the Tale of a Tub,) "how from a notion it became a word, and from thence, in a hot summer, ripened into a tangible Substance." We find Seneca thinking it necessary gravely to combat the position of some of his Stoical predecessors, "that the Cardinal Virtues are Animals:" while the Hindoos of the present day, from observing the similar symptoms which are known by the name of Small-pox, and the communication of the like from one patient to another, do not merely call it (as we do) *one* disease, but believe (if we may credit the accounts given) that the Small-pox is a Goddess, who becomes incarnate in each infected patient. All these absurdities are in fact but the extreme and ultimate point of Realism.—See Dissertation, Ch. v.

SIN, in its ordinary acceptation, means some actual transgression in thought, word, or deed, of the moral law, or of a positive divine precept. It has also, what may be called a theological sense, in which it is used for that *sinfulness* or *frailty*,—that liability, or proneness, to transgression, which all men inherit from their first Parents, and which is commonly denominated "original" Sin*; in which sense we find such expressions as "in Sin hath my Mother conceived me." The word seems also to be still further transferred, to signify the state of *condemnation itself*, in which the children of Adam are "by nature born," in consequence of this sinful tendency in them: (or, according to some divines, in consequence of the very guilt of Adam's offence being actually imputed to each individual of his posterity †.) It must be in the sense of a "state of condemnation" that our Church, in her office for infant baptism, speaks of "remission of Sins," with reference to a child, which is no moral agent: following the "innocency of children," (*i. e.* of *actual* Sin) being mentioned within a few sentences. And as it is plain that actual Sin cannot be here meant, so, neither can it be, in this place, man's *proneness* to Sin; since the baptismal office would not pray for, and hold out a promise of, "*release*" and "*remission*" of that φρονημα σαρκος which, according to the Article "remains even in the regenerate."

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* Of the *degree* of this depravity of our nature, various accounts are given; some representing it as amounting to a total loss of the moral faculty, or even, to a preference of evil for its own sake; others making it to consist in a certain undue preponderance of the lower propensities over the nobler sentiments, *&c.*, but these seem to be not differences as to the *sense* of the *word*, (with which alone we are here concerned) but as to the state of the *fact*.

† I must again remind the reader that I am inquiring only into the senses in which each word has *actually* been used; not into the truth or falsity of each *doctrine* in question.

Though all Theologians probably are *aware* of these distinctions, yet much confusion of thought has resulted from their not being always attended to.

THEREFORE.—*See* "REASON," and "WHY."

TRUTH, in the strict logical sense, applies to Propositions, and to nothing else; and consists in the conformity of the declaration made to the actual state of the case; agreeably to Aldrich's definition of a "true" proposition —vera est, quæ *quod res est* dicit.

It would be an advantage if the word Trueness or Verity could be introduced and employed in this sense, since the word Truth is so often used to denote the "true" *Proposition itself.* "What I tell you is the *Truth*; the *Truth* of what I say shall be proved:" the term is here used in these two senses. In like manner Falsehood is often opposed to Truth in both these senses; being commonly used to signify the quality of a false proposition. But as we have the word Falsity, which properly denotes this, I have thought it best, in a scientific treatise, always to employ it for that purpose.

In its etymological sense, Truth signifies that [illegible] speaker "trows," or believes to be the fact. [illegible] mology of the word ΑΛΗΘΕΣ seems to be similar; denoting *non-concealment*. In this sense it is opposed to a *Lie;* and may be called Moral, as the other may Logical, Truth. A witness therefore may comply with his oath to speak the Truth, though it so happen that he is *mistaken* in some particular of his evidence, provided he is fully convinced that the thing is as he states it.

Truth is not unfrequently applied, in loose and inaccurate language, to arguments; where the proper expression would be "correctness," "conclusiveness," or "validity."

Truth, again, is often used in the sense of *Reality*. People speak of the Truth or Falsity of *facts;* properly speaking, they are either *real* or *fictitious:* it is the *statement* that is "true" or "false." The "true" *cause* of any thing, is a common expression; meaning "that which may with Truth be assigned as the cause." The senses of Falsehood correspond.

This is an ambiguity of which the Romanists have often availed themselves with great effect; the ambiguity of the word Church (which see) lending its aid to the fallacy. "Even the Protestants," they say, "dare not deny ours to be a TRUE CHURCH: now there can be but ONE TRUE CHURCH;" (which they support by those passages of Scripture which relate to the collective body of Christians in all those several branches which are also in Scripture called Churches;) "ours therefore must be the *true Church;* if you forsake us you forsake the *truth* and the *Church,* and consequently shut yourself out from the promises of the Gospel." Those who are of a logical and accurate turn of mind will easily perceive that the sense in which the Romish Church is admitted by her opponents to be a *true* Church, is that of *reality;*—it is a *real, not a pretended Church;*—it may be *truly said* to be a Church. The sense in which the Romanists seize the concession is, that of a *Church teaching true doctrine;* which was never conceded to the Church of Rome by the Protestants, who hold, that a Church may err without ceasing to be a Church.

WHENCE. See "Why" and "Reason."

WHY? As an interrogative, this word is employed in three senses: *viz.*, "By what proof?" (or Reason) "From what Cause?" "For what purpose?" This last is commonly called the "final cause," *e. g.*, "Why is this prisoner guilty of the crime?" "Why does a stone fall to the earth?" "Why did you go to London?" Much confusion has arisen from not distinguishing these different inquiries. *See* Reason.

N. B. As the words which follow are all of them connected together in their significations, and as the explanations of their ambiguities have been furnished by the kindness of the Professor of Political Economy, it seemed advisable to place them by themselves, and in the order in which they appeared to him most naturally to arrange themselves.

The foundations of Political Economy being a few general propositions deduced from observation or from consciousness, and generally admitted as soon as stated, it might have been expected that there would be as little difference of opinion among Political-Economists as among Mathematicians;—that, being agreed in their premises, they could not differ in their conclusions, but through some error in reasoning, so palpable as to be readily detecte
And if they had possessed a vocabulary of general ter
as precisely defined as the mathematical, this would prob

bly have been the case. But as the terms of this Science are drawn from common discourse, and seldom carefully defined by the writers who employ them, hardly one of them has any settled and invariable meaning, and their ambiguities are perpetually overlooked. The principal terms are only seven: *viz.* VALUE, WEALTH, LABOUR, CAPITAL, RENT, WAGES, PROFITS.

1. VALUE. As value is the only relation with which Political Economy is conversant, we might expect all Economists to be agreed as to its meaning. There is no subject as to which they are less agreed.

The popular, and far the most convenient, use of the word, is to signify the capacity of being given and received in exchange. So defined, it expresses a relation. The value of any one thing must consist in the several quantities of all other things which can be obtained in exchange for it, and can never remain fixed for an instant. Most writers admit the propriety of this definition at the outset, but they scarcely ever adhere to it.

Adam Smith defines Value to mean either the *utility* of a particular object, or the power of *purchasing other* goods which the possession of that object conveys. The first he calls "Value in use," the second "Value in exchange." But he soon afterwards says, that equal quantities of labour at all times and places are of equal Value to the labourer, whatever may be the quantity of goods he receives in return for them; and that labour never varies in its own Value. It is clear that he affixed, or thought he had affixed, some other meaning to the word, as the first of these propositions is contradictory, and the second false, whichever of his two definitions we adopt.

Mr. Ricardo appears to set out by admitting Adam Smith's definition of Value in exchange. But in the greater part of his "Principles of Political Economy," he uses the word as synonymous with *Cost;* and by this one ambiguity has rendered his great work a long enigma. Mr. Malthus[*] defines Value to be the power of purchasing. In the very next page he distinguishes absolute from relative Value, a distinction contradictory to his definition of the term, as expressive of a *relation*.

Mr. M'Culloch[†] distinguishes between real and exchangeable, or relative, Value. And in his nomenclature, the exchangeable, or relative, value of a commodity consists in its capacity of purchasing;—its real Value, in the quantity of labour required for its production or appropriation.

All these differences appear to arise from a confusion of cause and effect. Having decided that commodities are Valuable in proportion to the labour they have respectively cost, it was natural to call that labour their Value.

2. WEALTH. Lord Lauderdale has defined Wealth to be "all that man desires." Mr. Malthus[‡] "those *material* objects which are necessary, useful, or agreeable." Adam Smith confines the term to that portion of the results of land and labour which is capable of being accumulated. The French Economists, to the net product of land. Mr. M'Culloch[§] and M. Storch[||] to those material products which have exchangeable value; according to Colonel Torrens[¶] it consists of articles which possess

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[*] "Measure of Value," p. 1.

[†] "Principles of Political Economy," part iii. sect 1.

[‡] "Principles of Political Economy," page 28.

[§] "Supplement to the Encyclopædia Britannica," vol. vi. p. 217.

[||] "Cours d'Economie Politique," tome i. p. 91. Paris edit.

[¶] "Production of Wealth," p. 1.

utility and are produced by some portion of voluntary effort. M. Say * divides wealth into natural and social, and applies the latter term to whatever is susceptible of exchange. It will be observed that the principal difference between these definitions consists in the admission or rejection of the qualifications "exchangeable and material."

It were well if the ambiguities of this word had done no more than puzzle philosophers. One of them gave birth to the mercantile system. In common language, to grow rich is to get *money*, to diminish in fortune is to lose *money:* a rich man is said to have a great deal of *money;* a poor man, very little: and the terms Wealth and money are in short employed as synonymous. In consequence of these popular notions (to use the words of Adam Smith) all the different nations of Europe have studied every means of accumulating gold and silver in their respective countries. This they have attempted by prohibiting the exportation of money, and by giving bounties on the exportation, and imposing restrictions on the importation, of other commodities, in the hope of producing what has been called a "favourable balance of trade;" that is, a trade in which, the imports being always of less value than the exports, the difference is paid in money. A conduct as wise as that of a tradesman who should part with his goods only for money, and instead of employing their price in paying his workmen's wages, or replacing his stock, should keep it for ever in his till. The attempt to force such a trade has been as vain, as the trade, if it could have been obtained, would have been mischievous. But the results have been fraud, punishment, and poverty at home, and discord and war without. It has made nations consider the Wealth of their customers a source of loss instead of profit, and an advantageous market a curse instead of a blessing; by inducing them to refuse to profit by the peculiar advantages in climate, soil, or industry, possessed by their neighbours, it has forced them in a great measure to give up their own. It has for centuries done more, and perhaps for centuries to come will do more, to retard the improvement of Europe than all other causes put together.

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* "Traité d'Economie Pol." liv. ii. chap. 1.

3. LABOUR. The word Labour signifies both the *act* of labouring, and the *result* of that act. It is used in the first sense when we talk of the wages of labour; in the second when we talk of accumulated labour. When used to express the act of labouring it may appear to have a precise sense, but it is still subject to some ambiguity. Say's definition * is "action suivie, dirigée vers un bût." Storch's † "l'action des facultés humaines dirigée vers un bût utile." These definitions include a walk taken for the purposes of health, and even the exertions of an agreeable converser.

The great defect of Adam Smith, and of our own economists in general, is the want of definitions. There is, perhaps, no definition of Labour by any British Economist. If Adam Smith had framed one, he would probably have struck out his celebrated distinction between "productive" and "unproductive" labourers; for it is difficult to conceive any definition of Labour which will admit the epithet "unproductive" to be applied to any of its subdivisions, excepting that of *misdirected* labour. On the other hand, if Mr. M‘Culloch or Mr. Mill had defined Labour, they would scarcely have applied that term to the growth of a tree, or the improvement of wine in a cellar.

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* "Traité," &c. tome ii. p. 506.

† "Cours," &c. liv. i. chap. 4.

4. CAPITAL. This word, as might have been expected, from the complexity of the notions which it implies, has been used in very different senses.

It is, as usual, undefined by Adam Smith. The general meaning which he attached to it will however appear from his enumeration of its species. He divides it,[*] into *Fixed* and *Circulating:* including in the first what the capitalist retains, in the second what he parts with. Fixed Capital he subdivides into—1. Machinery; 2. Shops and other buildings used for trade or manufacture; 3. Improvements of land; 4. Knowledge and skill. Circulating Capital he subdivides into 1. Money; 2. Provisions in the hands of the provision-venders; 3. Unfinished materials of manufacture; 4. Finished work in the hands of the merchant or manufacturer, such as furniture in a cabinet-maker's shop, or trinkets in that of a jeweller. The following is a list of the definitions adopted by some of the most eminent subsequent economists.

Ricardo[†]—" that part of the wealth of a country which is employed in production; consisting of food, clothing, tools, raw materials, machinery, &c., necessary to give effect to labour."

Malthus[‡]—" that portion of the material possessions of a country which is destined to be employed with a view to profit."

Say[§]—" accumulation de valeurs soustraites à la consomption improductive." Cap. 3. " Machinery, necessaries of the workman, materials."

Storch[||]—" un fonds de richesses destiné à la production matérielle."

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[*] Book ii. chap. 1.

[†] " Principles of Political Economy," p. 89, 3rd edit.

[‡] " Principles," &c., p. 293.

[§] " Traité," &c., tome ii. p. 454.

[||] " Cours," &c., liv. 2. chap. 1.

M'Culloch*—"that portion of the produce of industry which can be made directly available to support human existence, or facilitate production."

Mill†—"something produced, for the purpose of being employed as the mean towards a further production."

Torrens‡—"those things on which labour has been bestowed, and which are destined, not for the immediate supply of our wants, but to aid us in obtaining other articles of utility."

It is obvious that few of these definitions exactly coincide. Adam Smith's (as implied in his use of the term; for he gives no formal definition) excludes the necessaries of the labourer, when in his own possession; all the rest (and perhaps with better reason) admit them. On the other hand, Adam Smith admits (and in that he seems to be right) those things which are incapable of productive consumption, provided they have not yet reached their consumers. All the other definitions, except perhaps that of Mr. Malthus, which is ambiguous, are subject to the inconsistency of affirming that a diamond, and the gold in which it is to be set, are Capital while the jeweller keeps them separate, but cease to be so when he has formed them into a ring: almost all of them, also, pointedly exclude knowledge and skill. The most objectionable, perhaps, is that of Mr. M'Culloch, which, while it excludes all the finished contents of a jeweller's shop, would include a racing-stud.

Adam Smith, however, is far from being consistent in his use of the word: thus, in the beginning of his second book he states, that all Capitals are destined for the maintenance of productive labour only. It is difficult to see what labour is maintained by what is to be unproductively consumed.

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* "Principles," &c. p. 99.

† "Elements," &c., p. 19, 3rd edit.

‡ "Production of Wealth," p. 5.

5. RENT. 6. WAGES. 7. PROFIT.

Adam Smith first divided revenue into Rent, Wages, and Profit; and his division has been generally followed. The following definitions will best shew the degree of precision with which these three terms have been employed.

ADAM SMITH.

1. Rent. What is paid for the licence to gather the produce of the land.—Book i. chap. 6.
2. Wages. The price of labour.—Book i. chap. 5.
3. Profit. The revenue derived from stock by the person who manages or employs it.—Book i. chap. 6.

SAY. (*Traité d'Economie Politique.*) 4ème Edit.

1. Rent. Le profit résultant du service productif de la terre.—Tome ii. p. 169.
2. Wages. Le prix de l'achat d'un service productif industriel.—Tome ii. p. 503.
3. Profit. La portion de la valeur produite, retirée par le capitaliste.—Tome i. p. 71, subdivided into intérêt, profit industriel, and profit capital.

STORCH. (*Cours d'Economie Politique.*) Paris, 1823.

1. Rent. Le prix qu'on paye pour l'usage d'un fonds de terre.—Tome i. p. 354.
2. Wages. Le prix du travail.—p. 283.
3. Profit. The returns to capital are considered by

Storch under the heads, rente de capital, and profit de l'entrepreneur. The first he divides into loyer, the hire of fixed capital, and intérêt, that of circulating capital. The second he considers as composed of, 1st, remuneration for the use of capital; 2d, assurance against risk; 3d, remuneration for trouble.—Liv. iii. chap. 2, 8, 13.

SISMONDI. (*Nouveau Principes, &c.*)

1. Rent. La part de la récolte annuelle du sol qui revient au propriétaire après qu'il a acquitté les frais qui l'ont fait naître; and he analyzes rent into, 1st, la compensation du travail de la terre; 2d, le prix de monopole; 3d, la mieux valeur que le propriétaire obtient par la comparaison d'une terre de nature supérieure à une terre inférieure; 4th, le révenu des capitaux qu'il a fixés lui-même sur la terre, et ne peut plus en retirer.—Tome i. p. 280.

2. Wages. Le prix du travail.—p. 91.

3. Profit. La valeur dont l'ouvrage achevé surpasse les avances qui l'ont fait faire. L'avantage qui résulte des travaux passés. Subdivided into intérêt and profit mercantile.—p. 94, 359.

MALTHUS. (*Principles, &c.*)

1. Rent. That portion of the value of the whole produce of land which remains to the owner after payment of all the outgoings of cultivation, including average profits on the capital employed. The excess of price above wages and profits.—p. 134.

2. Wages. The remuneration of the labourer for his personal exertions.—p. 240.

3. Profit. The difference between the value of the advances necessary to produce a commodity, and the value of the commodity when produced.—p. 293.

MILL. (*Elements, &c.*) 3rd Ed.

1. Rent. The difference between the return made to the most productive, and that which is made to the least productive, portion of capital employed on the land.—p. 33.

2. Wages. The price of the labourer's share of the commodity produced.—p. 41.

3. Profit. The share of the joint produce of labour and stock which is received by the owner of stock after replacing the capital consumed. The portion of the whole annual produce which remains after deducting rent and wages. Remuneration for hoarded labour.—Chap. 2, 3.

TORRENS. (*Corn Trade.*) 3rd Ed.

1. Rent. That part of the produce which is given to the land-proprietor for the use of the soil.—p. 130.

2. Wages. The articles of wealth which the labourer receives in exchange for his labour.—p. 83.

3. Profit. The excess of value which the finished work possesses above the value of the material, implements, and subsistence expended. The surplus remaining after the cost of production has been replaced.—*Production of Wealth*, p. 53.

M'CULLOCH. (*Principles, &c.*)

1. Rent. That portion of the produce of the earth which is paid by the farmer to the landlord for the use of the natural and inherent powers of the soil.—p. 265.

2. Wages. The compensation paid to labourers in return for their services.—*Essay on Rate of Wages*, p. 1.

3. Profit. The excess of the commodities produced by the expenditure of a given quantity of capital, over that quantity of capital.—*Principles*, p. 366.

RICARDO. (*Principles, &c.*) 3rd Ed.

1. Rent. That portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil.—p. 53.

2. Wages. The labourer's proportion of the produce. —Chap. 5.

3. Profit. The capitalist's proportion of the produce. —Chap. 6.

The first observation to be made on these definitions, is, that the Rent of *land*, which is only a *species* of an extensive genus, is used as a genus, and that its cognate species are either omitted, or included under genera to which they do not properly belong. Wages and Profits are of human creation: they imply a sacrifice of ease or immediate enjoyment, and bear a ratio to that sacrifice which is indicated by the common expressions of "the rate of wages," and "the rate of profits:" a ratio which has a strong tendency to uniformity. But there is another and a very large source of revenue which is not the creation of man, but of nature; which owes its origin, not to the will of its possessor, but to accident; which implies no sacrifice, has no tendency to uniformity, and to which the term "rate" is seldom applied. This revenue arises from the exclusive right to some instrument of production, enabling the employment of a given amount of labour or capital to be more than usually productive. The *principal* of these instruments is land; but all extraordinary powers of body or mind,—all processes in manufacture which are protected by secrecy or by law,—all peculiar advantages from situation or connexion,—in short, every instrument of production which is not universally accessible, affords a revenue distinct in its origin from Wages or Profits, [illegible] of which the Rent of land is only a species. In the cl[illegible] sification of revenues, either Rent ought to have been omitted as a genus, and considered only as an anomalous interruption of the general uniformity of wages and profits, or all the accidental sources of revenue ought to have been included in one genus, of which the Rent of land would have formed the principal species. Another remark is, that almost all these definitions of Profit include the *wages of the labour of the Capitalist.* The continental Economists have in general been aware of this, and have pointed it out in their analyses of the component parts of Profit. The British Economists have seldom entered into this analysis, and the want of it has been a great cause of obscurity.

On the other hand, much of what properly belongs to Profit and Rent is generally included under Wages. Almost all Economists consider the members of the liberal professions under the class of labourers. The whole subsistence of such persons, observes Mr. M'Culloch[*], is derived from Wages; and they are as evidently labourers as if they handled the spade or the plough. But it should be considered, that those who are engaged in any occupation requiring more skill than that of a common husbandman, must have expended capital, more or less, on the acquisition of their skill: their education must have cost something, in every case, from that of the handicraft-apprentice, to that of the legal or medical student; and a Profit on this outlay is of course looked for, as in other disbursements of capital; and the higher profit, in proportion to the risk; viz., the uncertainty of a man's success in his business. Part, therefore, and generally far the greater part, of what has been reckoned the wages of his labour, ought more properly to be reckoned profits on the capital expended in fitting him for that particular kind of labour. And all the excess of gains acquired by one possessing extraordinary talents, opportunities, or patronage (since these correspond to the possession of land,—of a patent-right,—or other monopoly,—of a secret, *&c.*) may be more properly regarded as Rent than as Wages.

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[*] "Principles," &c., p. 228.

Another most fruitful source of ambiguity arises from the use of the word Wages, sometimes as expressing a *quantity*, sometimes as expressing a *proportion*.

In ordinary language, Wages means the *amount of some commodity*, generally of silver, given to the labourer in return for a given exertion; and they rise or fall, as that amount is increased or diminished.

In the language of Mr. Ricardo, they usually mean the labourer's *proportion of what is produced*, supposing that produce to be divided between him and the Capitalist. In this sense they generally rise as the whole produce is diminished; though, if the word be used in the other sense, they generally fall. If Mr. Ricardo had constantly used the word "Wages" to express a *proportion*, the only inconvenience would be the necessity of always translating this expression into common language. But he is not consistent. When he says*, that "whatever raises the Wages of labour lowers the Profits of stock," he considers Wages as a *proportion*. When he says†, that "high Wages encourage population;" he considers wages as an *amount*. Even Mr. M'Culloch, who has clearly explained the ambiguity, has not escaped it. He has even suffered it to affect his reasonings. In his valuable essay, "On the Rate of Wages‡," he admits that "when Wages are high the Capitalist has to pay a larger share of the produce of industry to his labourers." An admission utterly inconsistent with his general use of the word, as expressing the *amount* of what the labourer receives, which, as he has himself observed[*], may increase while his *proportion* diminishes.

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* "Principles," *&c.* p. 231. † *Ib.* p. 83.

A few only have been noticed of the ambiguities which attach to the seven terms that have been selected; and these terms have been fixed on, not as the most ambiguous, but as the most important, in the political nomenclature. "Supply and Demand," "Productive and Unproductive," "Overtrading," and very many others, both in political economy, and in other subjects, which are often used without any more explanation, or any more suspicion of their requiring it, than the words "triangle" or "twenty," are perhaps even more liable to ambiguities than those above treated of. But it is sufficient for the purpose of this Appendix to have noticed, by way of specimens, a few of the most remarkable terms in several different branches of knowledge, in order to show both the frequency of an ambiguous use of language, and the importance of clearing up such ambiguity.

LIST OF WORDS EXPLAINED IN THE ABOVE APPENDIX.

Argument.
Can.—*See* May.
Capable—*See* Possible, Impossible, Necessary.
Case.
Cause.—*See* Reason, Why.
Certain.
Church.
Because.—*See* Reason, Why.
Election.
Experience.
Gospel.
Hence.—*See* Reason, Why.
Identical.—*See* One, Same.
Impossibility.
May.—*See* Must.

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[*] "Principles of Political Economy," p. 365.

Necessary.
Old.
One.
Person.
Priest.
Reason.
Regeneration.
Same.
Sin.
Therefore.—*See* **Why.**
Truth.
Why.
Whence.—*See* **Why.**
Value.
Wealth.
Labour.
Capital.
Rent.
Wages.
Profits.

APPENDIX.

No. II.

MISCELLANEOUS EXAMPLES FOR THE EXERCISE OF LEARNERS.

N. B. In such of the following examples as are not in a syllogistic form, it is intended that the student should practise the reduction of them into that form; those of them, that is, in which the reasoning is in itself sound: *viz.* where it is impossible to admit the Premises and deny the Conclusion. Of such as are apparent syllogisms, the validity must be tried by logical rules, which it may be advisable to apply in the following order: 1st. Observe whether the argument be Categorical or Hypothetical; recollecting that an hypothetical Premiss does not necessarily imply an hypothetical Syllogism, unless the reasoning turns on the hypothesis. If this appear to be the case, the rules for hypothetical Syllogisms must be applied. 2dly. If the argument be categorical, count the terms. 3dly. If only three, observe whether the Middle be distributed. 4thly. Observe whether the Premises are both negative; (*i. e.* really, and not in appearance only,) and if one is, whether the Conclusion be negative also; or affirmative, if both Premises affirmative. 5thly. Observe what terms are distributed in the Conclusion, and whether the same are distributed in the Premises. 6thly. If the Syllogism is not a Categorical in the first Figure, reduce it to that form.

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1. No one is free who is enslaved by his appetites: a sensualist is enslaved by his appetites: therefore a sensualist is not free.

2. None but Whites are civilized: the ancient Germans were Whites: therefore they were civilized.

3. None but Whites are civilized: the Hindoos are not Whites: therefore they are not civilized.

4. None but civilized people are Whites: the Gauls were Whites: therefore they were civilized.

5. No one is rich who has not enough: no miser has enough: therefore no miser is rich.

6. If penal laws against Papists were enforced, they would be aggrieved; but penal laws against them are not enforced: therefore the Papists are not aggrieved.

7. If all testimony to miracles is to be admitted, the popish legends are to be believed; but the popish legends are not to be believed: therefore no testimony to miracles is to be admitted.

8. If men are not likely to be influenced in the performance of a known duty by taking an oath to perform it, the oaths commonly administered are superfluous: if they are likely to be so influenced, every one should be made to take an oath to behave rightly throughout his life; but one or the other of these must be the case: therefore either the oaths commonly administered are superfluous, or every man should be made to take an oath to behave rightly throughout his life.

9. The Scriptures must be admitted to be agreeable to truth; and the Church of England is conforma [illegible] the

Scriptures: A. B. is a divine of the Church of England; and this opinion is in accordance with his sentiments: therefore it must be presumed to be true.

10. Enoch (according to the testimony of Scripture) pleased God; but without faith it is impossible to please Him; (for he that cometh to God must believe that He is, and that He is a rewarder of them that diligently seek Him): therefore, &c.

11. " If Abraham were justified by works, then had he whereof to glory [before God :] but not [any one can have whereof to glory] before God :" therefore Abraham was not justified by works.

12. " He that is of God heareth my words; ye therefore hear them not, because ye are not of God."

13. Few treatises of science convey important truths, without any intermixture of error, in a perspicuous and interesting form; and therefore, though a treatise would deserve much attention which should possess such excellence, it is plain that few treatises of science do deserve much attention.

14. We are bound to set apart one day in seven for religious duties, if the fourth commandment is obligatory on us: but we are bound to set apart one day in seven for religious duties; and hence it appears that the fourth commandment is obligatory on us.

15. Abstinence from the eating of blood had reference to the divine institution of sacrifices: one of the precepts delivered to Noah was abstinence from the eating of blood: therefore one of the precepts delivered to Noah was the divine institution of sacrifices.

16. If expiatory sacrifices were divinely appointed before the Mosaic law, they must have been expiatory, not of ceremonial sin (which could not then exist), but of moral sin: if so, the Levitical sacrifices must have had no less

efficacy; and in that case, the atonements under the Mosaic law would have "made the comers thereunto perfect as pertaining to the conscience;" but this was not the case: therefore, &c. [Davison on Prophecy.]

17. The adoration of images is forbidden to Christians, if we suppose the Mosaic law designed not for the Israelites alone, but for all men: it was designed, however, for the Israelites alone, and not for all men: therefore the adoration of images is not forbidden to Christians.

18. A desire to gain by another's loss is a violation of the tenth commandment: all gaming, therefore, since it implies a desire to profit at the expense of another, involves a breach of the tenth commandment.

19. All the fish that the net enclosed were an indiscriminate mixture of various kinds: those that were set aside and saved as valuable, were fish that the net enclosed: therefore those that were set aside, and saved as valuable, were an indiscriminate mixture of various kinds.

20. All the elect are finally saved: such persons as are arbitrarily separated from the rest of mankind by the divine decree are the elect: therefore such persons as are arbitrarily separated from the rest of mankind by the divine decree are finally saved. [The opponents of this Conclusion generally deny the Minor Premiss and admit the Major: the reverse would be the more sound and the more effectual objection.]

21. No one who lives with another on terms of confidence is justified, on any pretence, in killing him: Brutus lived on terms of confidence with Cæsar: therefore he was not justified, on the pretence he pleaded, in killing him.

22. He that destroys a man who usurps despotic power in a free country deserves well of his countrymen: Brutus destroyed Cæsar, who usurped despotic power in Rome: therefore he deserved well of the Romans.

23. If virtue is voluntary, vice is voluntary: virtue is voluntary: therefore so is vice. [Arist. Eth. B. iii.]

24. A wise lawgiver must either recognise the rewards and punishments of a future state, or must be able to appeal to an extraordinary Providence, dispensing them regularly in this life: Moses did not do the former: therefore he must have done the latter.

25. Nothing which is of less frequent occurrence than the falsity of testimony can be fairly established by testimony: any extraordinary and unusual fact is a thing of less frequent occurrence than the falsity of testimony (that being very common): therefore no extraordinary and unusual fact can be fairly established by testimony.

26. Testimony is a kind of evidence which is very likely to be false: the evidence on which most men believe that there are pyramids in Egypt is testimony: therefore the evidence on which most men believe that there are pyramids in Egypt is very likely to be false.

27. The religion of the ancient Greeks and Romans was a tissue of extravagant fables and groundless superstitions, credited by the vulgar and the weak, and maintained by the more enlightened, from selfish or political views: the same was clearly the case with the religion of the Egyptians: the same may be said of the Brahminical worship of India, and the religion of Fo, professed by the Chinese: the same, of the romantic mythological system of the Peruvians, of the stern and bloody rites of the Mexicans, and those of the Britons, and of the Saxons: hence we may conclude that all systems of religion, however varied in circumstances, agree in being superstitions kept up among the vulgar, from interested or political views in the more enlightened classes. [See Dissertation, cap. i. § 2. p. 212.]

28. No man can possess power to perform impossibili-

ties; a miracle is an impossibility: therefore no man can possess power to perform a miracle. [See Appendix, p. 283.]

29. A. B. and C. D. are each of them equal to E. F.: therefore they are equal to each other.

30. Protection from punishment is plainly due to the innocent: therefore, as you maintain that this person ought not to be punished, it appears that you are convinced of his innocence.

31. All the most bitter persecutions have been religious persecutions: among the most bitter persecutions were those which occurred in France during the revolution: therefore they must have been religious persecutions.

32. He who cannot possibly act otherwise than he does, has neither merit nor demerit in his action: a liberal and benevolent man cannot possibly act otherwise than he does in relieving the poor: therefore such a man has neither merit nor demerit in his action. [See Appendix, pp. 286—7.]

33. What happens every day is not improbable: some things against which the chances are many thousands to one, happen every day: therefore some things against which the chances are many thousands to one, are not improbable.

34. The early and general assignment of the Epistle to the Hebrews to St. Paul as its author, must have been either from its professing to be his, and containing his name, or from its really being his; since, therefore, the former of these is not the fact, the Epistle must be St. Paul's.

35. "With some of them God was not well pleased: for they were overthrown in the wilderness."

36. A sensualist wishes to enjoy perpetual gratifications without satiety: it is impossible to enjoy perpetual grati-

fications without satiety: therefore it is impossible for a sensualist to obtain his wish.

37. If Paley's system is to be received, one who has no knowledge of a future state has no means of distinguishing virtue and vice: now one who has no means of distinguishing virtue and vice can commit no sin: therefore if Paley's system is to be received, one who has no knowledge of a future state can commit no sin.

38. The principles of justice are variable: the appointments of nature are invariable: therefore the principles of justice are no appointment of nature. [Arist. Eth. B. v.]

39. Every one desires happiness: virtue is happiness: therefore every one desires virtue. [Arist. Eth. B. iii.]

40. A story is not to be believed, the reporters of which give contradictory accounts of it; the story of the life and exploits of Buonaparte is of this description: therefore it is not to be believed. [*Vide* Elements, p. 26.]

41. When the observance of the first day of the week as a religious festival in commemoration of Christ's resurrection, was first introduced, it must have been a novelty: when it was a novelty, it must have attracted notice: when it attracted notice, it would lead to inquiry respecting the truth of the resurrection: when it led to this inquiry, it must have exposed the story as an imposture, supposing it not attested by living witnesses: therefore, when the observance of the first day of the week, &c. was first introduced, it must have exposed as an imposture the story of the resurrection, supposing it not attested by living witnesses.

42. All the miracles of Jesus would fill more books than the world could contain: the things related by the Evangelists are the miracles of Jesus: therefore the things related by the Evangelists would fill more books than the world could contain.

[illegible]

[illegible]

[illegible] according to [illegible] the Jews [illegible]

[illegible] according to St. James, [illegible] according to St. Paul: therefore [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

condition of a slave: many of the negroes, however, may be happy in the condition of slaves, because they have never been accustomed to enjoy liberty.

51. Whatever is dictated by Nature is allowable: devotedness to the pursuit of pleasure in youth, and to that of gain in old age, are dictated by Nature [Arist. Rhet. B. ii.]: therefore they are allowable.

52. He is the greatest lover of any one who seeks that person's greatest good: a virtuous man seeks the greatest good for himself: therefore a virtuous man is the greatest lover of himself. [Arist. Eth. B. ix.]

53. He who has a confirmed habit of any kind of action, exercises no self-denial in the practice of that action: a good man has a confirmed habit of Virtue: therefore he who exercises self-denial in the practice of Virtue is not a good man. [Arist. Eth. B. ii.]

54. That man is independent of the caprices of Fortune who places his chief happiness in moral and intellectual excellence: a true philosopher is independent of the caprices of Fortune; therefore a true philosopher is one who places his chief happiness in moral and intellectual excellence.

55. A system of government which extends to those actions that are performed secretly, must be one which refers either to a regular divine providence in this life, or to the rewards and punishments of another world: every perfect system of government must extend to those actions which are performed secretly: no system of government therefore can be perfect, which does not refer either to a regular divine providence in this life, or to the rewards and punishments of another world. [Warburton's Divine Legation.]

56. For those who are bent on cultivating their minds by diligent study, the incitement of academical honours is unnecessary; and it is ineffectual, for the idle, and such as

are indifferent to mental improvement: therefore the incitement of academical honours is either unnecessary or ineffectual.

57. He who is properly called an actor, does not endeavour to make his hearers believe that the sentiments he expresses and the feelings he exhibits, are really his own: a barrister does this: therefore he is not properly to be called an actor.

58. He who bears arms at the command of the magistrate does what is lawful for a Christian: the Swiss in the French service, and the British in the American service, bore arms at the command of the magistrate; therefore they did what was lawful for a Christian.

59. If Lord Bacon is right, it is improper to stock a new Colony with the refuse of Jails: but this we must allow not to be improper, if our method of colonizing New South Wales be a wise one: if this be wise, therefore, Lord Bacon is not right.

60. Logic is indeed worthy of being cultivated, if Aristotle is to be regarded as infallible: but he is not: Logic therefore is not worthy of being cultivated.

61. All studies are useful which tend to advance a man in life, or to increase national and private wealth: but the course of studies pursued at Oxford has no such tendency: therefore it is not useful.

62. If the exhibition of criminals, publicly executed, tends to heighten in others the dread of undergoing the same fate, it may be expected that those soldiers who have seen the most service, should have the most dread of death in battle: but the reverse of this is the case: therefore the former is not to be believed.

63. If the everlasting favour of God is not bestowed at random, and on no principle at all, it must be bestowed either with respect to men's persons, or with respect to

their conduct: but "God is no respecter of persons:" therefore his favour must be bestowed with respect to men's conduct. [Sumner's Apostolical Preaching.]

64. If transportation is not felt as a severe punishment, it is in itself ill-suited to the prevention of crime: if it is so felt, much of its severity is wasted, from its taking place at too great a distance to affect the feelings, or even come to the knowledge, of most of those whom it is designed to deter; but one or other of these must be the case: therefore transportation is not calculated to answer the purpose of preventing crime.

65. War is productive of evil: therefore peace is likely to be productive of good.

66. Some objects of great beauty answer no other perceptible purpose but to gratify the sight: many flowers have great beauty; and many of them accordingly answer no other purpose but to gratify the sight.

67. A man who deliberately devotes himself to a life of sensuality is deserving of strong reprobation: but those do not deliberately devote themselves to a life of sensuality who are hurried into excess by the impulse of the passions: such therefore as are hurried into excess by the impulse of the passions are not deserving of strong reprobation. [Arist. Eth. B. vii.]

68. It is a difficult task to restrain all inordinate desires: to conform to the precepts of Scripture implies a restraint of all inordinate desires: therefore it is a difficult task to conform to the precepts of Scripture.

69. Any one who is candid will refrain from condemning a book without reading it: some Reviewers do not refrain from this: therefore some Reviewers are not candid.

70. If any objection that can be urged would justify a change of established laws, no laws could reasonably be

maintained: but some laws can reasonably be maintained: therefore no objection that can be urged will justify a change of established laws.

71. If any complete theory could be framed, to explain the establishment of Christianity by human causes, such a theory would have been proposed before now; but none such ever has been proposed: therefore no such theory can be framed.

72. He who is content with what he has, is truly rich: a covetous man is not content with what he has: no covetous man therefore is truly rich.

73. A true prophecy coincides precisely with all the circumstances of such an event as could not be conjectured by natural reason: this is the case with the prophecies of the Messiah contained in the Old Testament: therefore these are true prophecies.

74. The connexion of soul and body cannot be comprehended or explained; but it must be believed: therefore something must be believed which cannot be comprehended or explained.

75. Lias lies above Red Sandstone; Red Sandstone lies above Coal: therefore Lias lies above Coal.

76. Cloven feet belonging universally to horned animals, we may conclude that this fossil animal, since it appears to have had cloven feet, was horned.

77. All that glitters is not gold: tinsel glitters: therefore it is not gold.

78. A negro is a man: therefore he who murders a negro murders a man.

79. Meat and Drink are necessaries of life: the revenues of Vitellius were spent on Meat and Drink: therefore the revenues of Vitellius were spent on the necessaries of life.

80. Nothing is heavier than Platina: feathers are heavier than Nothing: therefore feathers are heavier than Platina.

81. The child of Themistocles governed his mother; she governed her husband; he governed Athens; Athens, Greece; and Greece, the world: therefore the child of Themistocles governed the world.

82. He who calls you a man speaks truly: he who calls you a fool, calls you a man: therefore he who calls you a fool speaks truly.

83. Warm countries alone produce wines: Spain is a warm country: therefore Spain produces wines.

84. It is an intensely cold climate that is sufficient to freeze Quicksilver: the climate of Siberia is sufficient to freeze Quicksilver: therefore the climate of Siberia is intensely cold.

85. Mistleto of the oak is a vegetable excrescence which is not a plant; and every vegetable excrescence which is not a plant, is possessed of magical virtues; therefore Mistleto of the oak is possessed of magical virtues.

86. If the hour-hand of a clock be any distance (suppose a foot) before the minute-hand, this last, though moving twelve times faster, can never overtake the other; for while the minute-hand is moving over those twelve inches, the hour-hand will have moved over one inch; so that they will then be an inch apart; and while the minute-hand is moving over that one inch, the hour-hand will have moved over $\frac{1}{12}$ inch, so that it will still be a-head; and again, while the minute-hand is passing over that space of $\frac{1}{12}$ inch, which now divides them, the hour-hand will pass over $\frac{1}{144}$ inch; so that it will still be a-head, though the distance between the two is diminished; *&c. &c. &c.*, and thus it is plain we may go on for ever: there-

fore the minute-hand can never overtake the hour-hand. [This is one of the sophistical puzzles noticed by Aldrich (the moving bodies being Achilles and a Tortoise); but he is not happy in his attempt at a solution. He proposes to remove the difficulty by demonstrating that, in a certain given time, Achilles *would* overtake the Tortoise, as if any one had ever doubted that. The very problem proposed is to surmount the difficulty of a seeming demonstration of a thing palpably impossible; to show that it *is* palpably impossible, is no solution of the problem.

I have heard the present example adduced as a proof that the pretensions of Logic are futile, since (it was said) the most perfect logical demonstration may lead from true premises to an absurd conclusion. The reverse is the truth: the example before us furnishes a confirmation of the utility of an acquaintance with the syllogistic form; *in which form the pretended demonstration in question cannot possibly be exhibited*. An attempt to do so will evince the utter want of connexion between the premises and the conclusion.]

87. Theft is a crime: theft was encouraged by the laws of Sparta: therefore the laws of Sparta encouraged crime.

88. Every hen comes from an egg: every egg comes from a hen: therefore every egg comes from an egg.

89. Jupiter was the son of Saturn: therefore the son of Jupiter was the grandson of Saturn.

90. All cold is to be expelled by heat: this person's disorder is a cold: therefore it is to be expelled by heat.

91. Wine is a stimulant; therefore in a case where stimulants are hurtful, wine is hurtful.

92. Opium is a poison; but physicians advise some of their patients to take Opium: therefore physicians advise some of their patients to take poison.

93. What we eat grew in the fields; loaves of bread are what we eat: therefore loaves of bread grew in the fields.

94. Animal-food may be entirely dispensed with: (as is shown by the practice of the Brahmins and of some monks;) and vegetable-food may be entirely dispensed

with (as is plain from the example of the Esquimaux and others); but all food consists of animal-food and vegetable-food: therefore all food may be dispensed with.

95. No trifling business will enrich those engaged in it: a mining speculation is no trifling business: therefore a mining speculation will enrich those engaged in it.

96. He who is most hungry eats most: he who eats least is most hungry: therefore he who eats least eats most. [*See* Aldrick's Compendium: Fallaciæ: where this is rightly solved.]

97. Whatever body is in motion must move either in the place where it is, or in a place where it is not: neither of these is possible: therefore there is no such thing as motion. [In this instance, as well as in the one lately noticed, Aldrich mistakes the character of the difficulty: which is, not to prove the truth of that which is self-evident, but to explain an apparent demonstration militating against that which nevertheless no one ever doubted. He says in this case, "solvitur ambulando;" but (pace tanti viri) this is no solution at all, but is the very thing which *constitutes the difficulty* in question; for it is precisely *because* we know the possibility of motion, that a seeming proof of its impossibility produces perplexity.—*See* Introduction, p. 4.]

98. All vegetables grow most in the increase of the moon: hair is a vegetable: therefore hair grows most in the increase of the moon.

99. Most of the studies pursued at Oxford conduce to the improvement of the mind: all the works of the most celebrated ancients are among the studies pursued at Oxford: therefore some of the works of the most celebrated ancients conduce to the improvement of the mind.

100. Some poisons are vegetable: no poisons are useful drugs: therefore, some useful drugs are not vegetable.

101. A theory will speedily be exploded, if false, which appeals to the evidence of observation and experiment: Craniology appeals to this evidence: therefore, if Craniology be a false theory, it will speedily be exploded.

102. Wilkes was a favourite with the populace; he who

is a favourite with the populace must understand how to manage them; he who understands how to manage them, must be well acquainted with their character: he who is well acquainted with their character, must hold them in contempt: therefore Wilkes must have held the populace in contempt.

103. To discover whether man has any moral sense, he should be viewed in that state in which all his faculties are most fully developed: the civilized state is that in which all man's faculties are most fully developed: therefore, to discover whether man has any moral sense, he should be viewed in a civilized state.

104. Revenge, Robbery, Adultery, Infanticide, *&c.* have been countenanced by public opinion in several countries: all the crimes we know of are Revenge, Robbery, Adultery, Infanticide, *&c.*: therefore, all the crimes we know of have been countenanced by public opinion in several countries.

INDEX

TO THE

PRINCIPAL TECHNICAL TERMS.

Abstraction.—The act of "drawing off" in thought, and attending to separately, some portion of an object presented to the mind, *page* 60.

Accident.—In its widest technical sense, any thing that is attributed to another, and can only be conceived as belonging to some substance (in which sense it is opposed to "Substance"): in its narrower and more properly logical sense, a Predicable which may be present or absent, the essence of the Species remaining the same, 66.

Accidental Definition.—A definition which assigns the Properties of a Species, or the Accidents of an Individual; it is otherwise called a Description, 72.

Affirmative—denotes the quality of a Proposition which asserts the agreement of the Predicate with the Subject, 77.

Analogous.—A term is so called whose single signification applies with unequal propriety to more than one object, 60, *note;* and 168.

Antecedent.—That part of a Conditional Proposition on which the other depends, 100.

Apprehension (simple).—The operation of the mind by which we mentally perceive or form a notion of some object, 54.

Argument.—An expression in which, from something laid down as granted, something else is deduced, 86, 274.

Categorematic.—A word is so called which may by itself be employed as a Term, 58.

Categorical Proposition—is one which affirms or denies a Predicate of a Subject, absolutely, and without any hypothesis, 76.

Common term—is one which is applicable in the same sense to more than one individual object, 46, 60.

Conclusion.—That Proposition which is inferred from the Premises of an Argument, 25, 86.

Conditional Proposition—is one which asserts the dependence of one categorical Proposition on another. A conditional Syllogism is one in which the reasoning depends on such a Proposition, 100.

Consequent.—That part of a conditional Proposition which depends on the other. (Consequens), 100.

Consequence.—The connexion between the Antecedent and Consequent of a conditional Proposition. (Consequentia), 100.

Contingent.—The matter of a Proposition is so called when the terms of it in part agree, and in part disagree, 78.

Contradictory Propositions—are those which, having the same terms, differ both in Quantity and Quality, 81.

Contrary Propositions—are two universals, affirmative and negative, with the same terms, 81.

Converse.—83.

Conversion of a Proposition—is the transposition of the terms, so that the subject is made the Predicate, and *vice versâ*, 83.

Copula.—That part of a Proposition which affirms or denies the Predicate of the Subject; *viz.* is, or *is not*, expressed or implied, 57.

Definition.—An expression explanatory of that which is defined, *i. e.* separated, as by a boundary, from everything else, 71.

Description.—An accidental Definition, 72.

Difference (Differentia.)—The formal or distinguishing part of the essence of a Species, 65.

Discourse.—The third operation of the mind, Reasoning, 54.

Disjunctive Proposition—is one which consists of two or more categoricals, so stated as to imply that some one of them must be true. A syllogism is called disjunctive, the reasoning of which turns on such a proposition, 112.

Distributed—is applied to a Term that is employed in its full extent, so as to comprehend all its significates,—everything to which it is applicable, 43, 78.

Division, logical—is the distinct enumeration of several things signified by a common name; and it is so called metaphorically, from its being analogous to the (real and properly-called) division of a whole into its parts, 68.

Dilemma.—A complex kind of conditional syllogism, having more than one Antecedent in the Major Premiss, and a disjunctive Minor, 116.

Enthymeme.—An argument having one Premiss expressed, and the other understood, 121.

Equivocal.—A Term is defined to be equivocal whose different significations apply equally to several objects. Strictly speaking, there is hardly a word in any language which may not be regarded as, in this sense, equivocal; but the title is usually applied only in any case where a word is *employed* equivocally; *e. g.*, where the middle term is used in different senses in the two Premises; or where a Proposition is liable to be understood in various senses, according to the various meanings of one of its terms, 165.

Essential Definition—is one which assigns, not the Properties or Accidents of the thing defined, but what are regarded as its essential parts, whether physical or logical, 71.

Extreme.—The Subject and Predicate of a Proposition are called its Extremes or Terms, being, as it were, the two boundaries, having the copula (in regular order) placed between them. In speaking of a syllogism, the word is often understood to imply the extremes *of the Conclusion*, 57.

Fallacy.—Any argument, or apparent argument, which professes to be decisive of the matter at issue, while in reality it is not, 131.

False—in its strict sense, denotes the quality of a Proposition which states something not as it is, 77, 301.

Figure of a Syllogism—denotes a certain situation of its middle term in reference to the Extremes of the Conclusion—The Major and Minor terms, 95.

Generalization.—The act of comprehending under a common name several objects agreeing in some point which we abstract from each of them, and which that common name serves to indicate, 61.

Genus.—A Predicable which is considered as the material part of the Species of which it is affirmed, 62.

Hypothetical Proposition—is one which asserts not absolutely, but under an hypothesis, indicated by a conjunction. An hypothetical Syllogism is one of which the reasoning depends on such a proposition, 108.

Illative Conversion—is that in which the truth of the Converse follows from the truth of the Exposita, or Proposition given, 83.

Impossible.—The Matter of a Proposition is so called when the extremes altogether disagree, 81.

Indefinite Proposition—is one which has for its Subject a Common term without any sign to indicate distribution or non-distribution, 78.

Individual.—An object which is, in the strict and primary sense, one, and consequently cannot be *logically divided*; whence the name, 68.

Induction.—A kind of argument which infers, respecting a whole class, what has been ascertained respecting one or more individuals of that class, 207.

Infer.—To draw a conclusion from granted premises, 245.—*See* Prove.

Infima Species—is that which is not subdivided, except into individuals, 64.

Inseparable accident—is that which cannot be separated from the individual it belongs to, though it may from the Species, 66.

Judgment.—The second operation of the mind, wherein we pronounce mentally on the agreement and disagreement of two of the notions obtained by Simple Apprehension, 54.

Logical definition—is that which assigns the Genus and Difference of the Species defined, 71.

Major term of a Syllogism—is the Predicate of the conclusion. The Major Premiss is the one which contains the Major term. In Hypothetical Syllogisms, the Hypothetical Premiss is called the Major, 90, 108.

Middle term of a categorical Syllogism—is that with which the two extremes of the conclusion are separately compared, 90, 108.

Minor term of a categorical Syllogism—is the subject of the conclusion. The Minor Premiss is that which contains the Minor term. In Hypothetical Syllogisms, the Categorical Premiss is called the Minor, 90, 108.

Modal categorical proposition—is one which asserts that the Predicate exists in the Subject in a certain mode or manner, 76, 106.

Mood of a categorical Syllogism—is the designation of its three propositions, in the order in which they stand, according to their quantity and quality, 94.

Necessary matter of a proposition—is the essential or invariable agreement of its terms, 81.

Negative categorical proposition—is one which asserts the disagreement of its extremes, 77.

Nominal Definition—is one which explains only the meaning of the term defined, and nothing more of the nature of the thing signified by that Term than is implied by the Term itself to every one who understands the meaning of it, 73, 232.

Opposed.—Two propositions are said to be opposed to each other, when having the same Subject and Predicate, they differ either in quantity or quality, or both, 81.

Part—logically Species are called Parts of the Genus they co[illegible] under, and individuals, part of the Species; *really*,

Genus is a Part of the Species, and the Species of the Individual, 68.

Particular proposition—is one in which the Predicate is affirmed or denied of some part only of the subject, 77.

Per Accidens.—Conversion of a proposition is so called when the Quantity is changed, 84.

Physical definition—is that which assigns the parts into which the thing defined can be *actually* divided, 72.

Predicate of a proposition—is that Term which is affirmed or denied of the other, 57.

Predicable.—A Term which can be affirmatively predicated of several others, 62.

Premiss.—A proposition employed to establish a certain conclusion, 87.

Property.—A predicable which denotes something essentially conjoined to the essence of the Species, 65.

Proposition.—A sentence which asserts, *i. e.* affirms or denies, 75.

Prove.—To adduce Premises which establish the truth of a certain Conclusion, 245.

Proximum Genus of any Species—is the nearest or least remote to which it can be referred, 64.

Pure categorical proposition—is one which asserts simply that the Predicate is, or is not, contained in the Subject, 76, 106.

Real definition—is one which explains the nature of the thing defined; *viz.* either the *whole* nature of it (as in Mathematics), or else something beyond what is necessarily understood by the Term, 73, 232.

Quality of a Proposition—is its affirming or denying. This is the Quality of the *expression*, which is, in Logic, the essential circumstance. The Quality of the *matter*, is, its being true, or false; which is, in Logic, accidental, being essential only in respect of the subject-matter treated of, 77.

Quantity of a Proposition—is the extent in which its Subject is taken; *viz.* to stand for the whole, or for a part only of its Significates, 77.

Question.—That which is to be established as a Conclusion stated in an interrogative form, 86.

Separable accident—is one which may be separated from the individual, 66.

Significate.—The several things signified by a Common Term are its Significates (Significata), 77.

Singular term—is one which stands for one individual. A Singular proposition is one which has for its Subject either a Singular term, or a Common term limited to one individual by a singular sign, *e. g.* "This," 60, 79.

Sorites.—An abridged form of stating a series of Syllogisms, of which the Conclusion of each is a Premiss of the succeeding, 123.

Species.—A Predicate which is considered as expressing the whole essence of the individuals of which it is affirmed, 62.

Subaltern Species and Genus—is that which is both a Species of some higher Genus, and a Genus in respect of the Species into which it is divided. Subaltern opposition, is between a Universal and a Particular of the same Quality. Of these, the Universal is the Subalternant, and the Particular the Subalternate, 64, 81.

Subcontrary opposition—is between two particulars, the affirmative and the negative, 81.

Subject of a proposition—is that term of which the other is affirmed or denied, 57.

Summum Genus—is that which is not considered as a Species of any higher Genus, 64.

Syllogism.—An Argument expressed in strict logical form ; *viz.* so that its conclusiveness is manifest from the structure of the expression alone, without any regard to the meaning of the Terms, 88.

Syncategorematic words—are such as cannot singly express a Term, but only a part of a Term, 58.

Term.—The Subject or Predicate of a Proposition, 57.

True Proposition—is one which states what really is, 77.

Universal Proposition—is one whose Predicate is affirmed or denied of the whole of the Subject, 77.

Univocal.—A Common term is called Univocal in respect of those things to which it is applicable in the same signification, 60.

THE END.

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